The Builder.

VOL. XLI. No. 2093. SATURDAY, DECEMBER 31, 1881.

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Barry's Lectures on Architecture.

MR. ALFRED BARRY has edited the re-publication of the late Professor E. M. Barry's lectures on architecture,* delivered from time to time to the students of the Royal Academy. The lectures are prefaced by a short memoir of the author's professional career, by the Editor, of which we need only say here that it includes the history of the rather curious and much-debated matter of the Law Courts Competition, more fully to be read in our own pages, by the way, than elsewhere, for those who are interested in looking up the subject again. We do not think it, at the present juncture, advisable or suitable to enter afresh into any critical remarks in reference to what was obviously in some way or other a mismanaged affair, in regard to which Barry had much right to consider himself ill-used. The memoranda in regard to his subsequent treatment, *consule* Ayrton, serve to remind one very disagreeably of the great injustice and discourtesy with which Government officials in England do not scruple to treat eminent members of the architectural profession, of which there are unfortunately not a few other instances on record, though none so flagrant as this. It is to be hoped things may be somewhat better now, but at that time it appeared that an eminent architect, long in Government employment, and son of the still more eminent architect of the greatest of our Government buildings, was regarded as a person who had no rights whatever, and whose letters and representations in regard to the injustice with which he was treated did not even call for the courtesy of a reply. There can be only one judgment, in fact, in regard to the relations between the Commissioner of Works' Department and Edward Barry, viz., that the Government officials did not even behave like gentlemen, let alone all consideration of their notions upon architecture and architects.

We pass from the memoir, however, to the lectures themselves, which form a bulky volume of over 400 pages. The editor has exercised a discretion in regard to the arrangement of the lectures, which are not printed in the order of the dates of their delivery, but are arranged in reference to their subjects; being classified under two main groups, a first series embodying the discussion of "general principles," and a second "historical" series, the latter being arranged so that the styles are treated of in the historical order in which they arose. Notes are added giving the actual dates of the lectures; thus we find appended to an early chapter of the volume on "Architecture Governed by Technical Principles," a note to the effect that this was the last lecture delivered by the author. Our first impression was rather against this transposition; but, on consideration, we are disposed to think that the book is made to appear a more complete and readable treatise in this manner, when regarded as a whole.

These lectures, as here published, differ very much in two points from the last volume of reprints of Academy professional lectures which we had before us, those of the late Sir G. G. Scott. The latter were profusely illustrated (not, as we pointed out in reviewing them, without some curious slips in regard to accuracy). The present volume, as a book dealing with architecture, is certainly deficient in illustrations, and all those which are given are reprints of cuts previously published in other works. There may have been circumstances connected with the bringing out of the book which rendered this unavoidable; but the value of the book to those who are not already well acquainted with the phases of architecture of which it treats is certainly much lessened thereby. On the other hand, while Scott's lectures dealt chiefly with the concrete facts of architecture, Barry's in many parts cover a wider range, and are largely taken up with the consideration of architecture as affected by social conditions of life, &c., and some of these questions are treated in a broad and philosophic spirit which is not very often to be found in architectural works.

Lights are thrown on a good many points in relation to the causes of failure of modern architecture, in a plain and common-sense spirit, in the first lecture on "The Variety of Interest in Architecture." That people in general should be made to feel that there is this variety of interest is, according to Professor Barry, one of the most essential conditions of architectural improvement. It is not easy to believe, he suggests, that the great public monuments of antiquity were constructed on the disheartening principle which governs public works now, where the question is not, How shall we get a worthy building? but, How little can it be made to cost? "We cannot fancy the architects of Westminster Abbey compelled to cheapen their design by reducing their mouldings, omitting the diapers and carvings, or leaving out the groined roofs, in order to save expense." Thinking of it in this way, it seems sometimes perfectly extraordinary that our press and Parliament should hold so mean a tone about art, and should be so utterly unconscious of its meanness. "Great nations," says Barry, "sometimes do little things, and their very greatness makes them impervious to criticism. It has been said that no one but a banker could walk down Lombard-street in a bad hat; and in a similar way it is, perhaps, only rich communities that can afford to show with impunity a public indifference to art." This may be only too true, perhaps; but there are other rich communities which do not show the same indifference. That this inertia in regard to art and architecture on the part of the public, and of their official representatives, is one of the very heaviest drags on artistic progress which exist among us, there can be no doubt whatever.

This sentence is one example of Professor Barry's tendency to look at reasons and motives, and not only at facts connected with his subject. He touches well, in the same lecture, on the revival movements of modern times, in a tolerant though not admiring spirit, as perhaps being only examples of carrying too far, for a time, the degree of study and of interest in the architecture of the past, which, when reduced to its right place, may in due time be a powerful factor in the formation of the architecture of the future. He was not blind to the fact that the Mediæval revival was from the outset "much mixed up with questions of religion and ritual"; a fact to which many modern Mediævalists are astonishingly blind.

We cannot, of course, go with the author when, in his second lecture, he by implication apologises for the recently-proposed iron balcony to London Bridge, on the ground that it was only a legitimate way of further utilising an existing structure in the best practical manner known in our own day. The project would have ruined the grand architectural expression of Rennie's bridge, and it is questionable whether it would have practically answered the proposed end. Nor can we concur in the apology which he makes in Lecture III. in regard to machine-made ornament, "that it must be clear to us all that the world will never give up a system, which by cheapening production serves the wants of the many, even at some cost to the artistic cravings of the few." This is an argument which is true enough as to machine-made pins and needles, or any other articles of purely utilitarian object. But cheapening ornament by machinery does *not* "serve the wants of the many," for it only gives the many that which is worthless, and which they had better be taught not to want. Ornament made by machinery can never really be worth much,—can never give the pleasure and interest which arise from design into each part of which the hand and feeling of the designer has gone.

The lecture on "Architecture as an Art of Utility" contains much which students would do well to read, mark, learn, and inwardly digest; among others, in regard to the seeking after intentional irregularity. "Young architects are apt sometimes to act as if it were a triumph of their art to throw down at random parts of a structure and accept the result. Irregularity is supposed of necessity to give picturesqueness, and the external quaintness of

* Lectures on Architecture, delivered at the Royal Academy. By the late Edward M. Barry, R.A. Edited, with Introductory Memoir, by Alfred Barry, D.D. With Portrait and Illustrations. London: John Murray. 1881.

a house is more studied than either the purse or the comfort of its inmates. This, I need hardly say, is a complete inversion of the principle that our art is based upon utility. . . . . Excepting in large structures, I should advise the student to be on his guard against needless irregularities of plan. In an artistic sense he has usually no greatness of dimensions or breadth of effect to throw away, and from the utilitarian point of view irregularity means too often expense and want of comfort, from an excessive surface of internal wall and of complication of roof." The fifth lecture, "Architecture Governed by Technical Principles," while there is nothing in it to which we should take exception, might have been more practically valuable if it had been more detailed and less general in its treatment of the subject.

We fear the same must be said of the chapter on "Architectural Proportion and Ornament," at least of the part of it dealing with "proportion," a matter which is said to be of great importance, but in regard to which we certainly can gather little idea from the lecture as to whether Professor Barry entertained any definite opinions on it. The first question in regard to "proportion" is to decide what we really are to mean when we talk of it; whether we are to mean a rule of relative sizes decided by mathematical or arithmetical laws; whether we are to mean the adoption of arbitrary rules, such as those embodied in Vitruvius, as recognised authorities merely on account of their acceptance by many generations of men; or whether our idea of proportion is merely to be derived from the judgment of the eye in each case. The first question is the most important, because on its acceptance or rejection so much depends in our method of looking at and judging architectural works. We do not derive from the author any certain judgment for or against this theory of mathematical proportion in architecture, or any statement of the arguments by which it may be supported or opposed; we have a general statement that the author is not disposed to accept the *dicta* laid down by some writers (as, for instance, that the best Gothic architects based their buildings on the equilateral triangle), but he gives an example of the fact that some conventional rules have produced good results: "A satisfactory proportion of a room may, for example, be obtained by first deciding the width, then drawing a line from one of the corners, so as to form an isosceles triangle, and making the length of the room equal to this line, being the hypothenuse of such triangle." What this means it is impossible to say. An isosceles triangle is simply a triangle of which two sides are equal; the relation of these two to the third side, and of the two equal angles to the third angle, may be anything we like, so that the definition is obviously incomplete somewhere. In regard to the question between the mere general satisfaction of the eye, which an unlearned spectator may be conscious of, and the satisfaction of the architectural critic who perceives that all the parts and mouldings follow out correctly a proportion which his eye has been accustomed to, and which he has been educated to consider as correct, a distinction is drawn which seems to us rather too decided. The instructed architect, we are told, "knows what should be the relative size of every detail,—what ratio the base should bear to the shaft, the shaft to the capital, and so forth. Any departure from recognised rules is to him a solecism and an offence, it is like a false quantity to a scholar, a *lapsus linguæ* to an educated man. The ordinary and not specially instructed observer sees none of these things. It is nothing to him whether a Grecian Doric column be used with a base, or a Corinthian column without one. The relative proportions of mouldings to each other have no significance for him, nor does he appreciate the differences of style which strike at once the more educated critic." Of course not. But how far are the perceptions of the more educated critic due to habit and acquired knowledge of the rules of a particular style, how far to a sense of innate and essential qualities of proportion? Because that is a very important question indeed. An architect who has been trained in a study of Classic models knows in what proportion (approximately, at least) various parts ought to be, and when he sees them differently proportioned he is struck with an impression of awkwardness in the architecture and want of knowledge in the designer; but we can hardly affirm positively that if he had been habituated to these proportions in the original style they would not have appeared satisfactory to him. Habit is an immense factor in architectural taste, far more so than is generally recognised. Then, appended to this, is the question whether it is an object of architecture to reproduce past styles correctly or not. If it is, of course this question of the correct proportion of the parts becomes of great importance. If it be not, the matter is altered entirely. The author, building on the fact that everybody has an opinion that an object is well proportioned or not, and that average cultivated judgment on the subject is not generally wrong, concludes that there must certainly be a science of proportion; but apparently also concludes (though he does not say so in so many words) that we cannot say what it is. That, however, is equivalent to saying that there is nothing that can be called science in the matter; it is a question of natural perception or "eye," heightened by culture. Nor can we say that the subject of ornament is treated in a way to clear it up very much to the student mind. It is certainly rather a contradiction in terms to be told in the same paragraph that a builder may erect a house which is practically satisfactory but displays no art, and that "the latter is shown in the application of ornament," and then in the next sentence, "not by the mere addition of carving, colour, or whatever may be thought to be ornament, but by giving dignity and beauty to the forms of construction," which is the exact opposite of "the application of ornament." A large proportion of the remarks on ornament enforce, in a suitable manner, views which have now been generally adopted by most people who are competent to form an opinion on the subject. We must question, however, the idea that we owe to the Greek love of sculpture the existence of the pediment as a prominent feature in architecture as a means of displaying sculpture. This would have been quite contrary to Greek architectural logic in general, besides which, we know that the pediment (which grew naturally out of the necessity for closing up the end of a roof) is found in the rock-cut architecture of Asia Minor, in places where no sculpture whatever is attempted.

In the lecture on "The Position of Modern Architects in respect of Architectural Restoration," the common-sense of the matter, as far as it can be urged on the side of restoration, is very well put. "Our churches," says the author, "are not mere tombs of the dead, but places of worship for the living. . . . . If the church of the district be so arranged that reverence in the service be impossible; if the pomps and vanities of earthly grandeur make themselves felt in it; if there be signs of neglect and deadness, all the more conspicuous from the contrast outside its doors, are we seriously to be told that we must not alter all this? And why? Because the gallery which darkens and divides bears the names of some old churchwardens; because the damp and ague-giving pavement exhibits some half-legible inscription; because the great Squire's pew, which symbolises selfishness, and shuts out the poor, has perchance some pleasant mouldings, some cornices of Georgian date, or, better still, some reminiscences of Queen Anne." This is just the common-sense of the matter, and it is satisfactory to find it so plainly and clearly put. "If," as he says elsewhere in the same lecture, "there be anything in architecture that is worthy the attention of earnest men, it cannot be that we are to look only to the past."

The lectures which form the historical portion of the book commence with one on "Early Military Architecture," which, as a phase of architectural work in which a great deal of really picturesque effect was evolved from the provision for the sternest and most exacting practical requirements, is not unsuitably placed at the head of the sketch of Mediæval architecture. The author confesses to having been much indebted in this lecture to Viollet-le-Duc, who had made the subject quite his own. We are then taken through the history of domestic architecture in the twelfth, thirteenth, fourteenth, and fifteenth centuries, and into the various periods of the Renaissance. Nothing new is professed or attempted, but there are some new lights thrown on the meaning and significance of some of the changes in architectural style which are worth attention. A remark is made, we observe, as to the vague and incorrect manner in which the expression "Palladian architecture" is frequently applied to Italian architecture:—"When men say they like or dislike Palladian architecture, they do not generally mean to refer to the architectural forms which Palladio himself actually used, but rather to Italian architecture generally, which has come to be described by a term only applicable in reality to one phase of its development." Much of what is called otherwise "Italian architecture" is, no doubt, entirely free from the peculiar faults of Palladianism (which latter is not without its peculiar excellencies also). The editor does not seem to be aware that since these lectures were delivered the history of the connexion of Bramante with St. Peter's has had much new light thrown on it, and it is a pity that he republishes the plan of the church ascribed elsewhere to Bramante, and which, if it was Bramante's at all, must have been only a subsidiary sketch for an idea of the church quite different from and quite inferior to the original idea of the Greek cross of which Bramante was certainly the author. Otherwise the review of the history of the Renaissance, except that it requires, like other parts of the book, more illustration, is a very well-connected and suggestive one, which we cordially recommend to the perusal of our readers. We may conclude by quoting the final paragraph, which closes the volume, and suggests matter for thought:—

"A calm review of the history of the Renaissance, and of the circumstances which led to it, leads us to the conclusion that the movement is not yet over. The Classical tastes, which gave to it the first impulse, still exist among us and are likely to continue. An architecture which can give us solidity and magnificence; which can adapt itself to purposes of utility, and assimilate progressive scientific construction; which unites elegance of proportion with refinement of detail, and which welcomes the best efforts of the painter and sculptor in a loving combination of art, cannot be easily banished from the modern practice of the civilised world." Its spirit, at all events, is not likely entirely to die, in whatever different and even eventually improved forms it may hereafter exhibit itself.

THE LATIN PLAYS: ILLUSTRATIVE OF EDIFICES, AND OF EDIFICATION.

No word is more frequent in the mouths of the playwrights than "construction,"—well-constructed dramas, badly-constructed, loosely-constructed, defectively-constructed,—in fact, to listen to them, construction sometimes seems the main difficulty of the craft. Wit, repartee, incident, character, sentiment, humour,—these are the flesh and blood; but construction seems to deal with the skeleton, which is the support and foundation of all.

So far, dramatic construction agrees with architectural, for it would seem that the best materials may collapse if badly put together; but, in truth, the terms do not bear parallel interpretation in the two arts. The dramatist's notion of construction is the distribution of the subject which he has in his mind into successive scenes which shall gather force and effect from order of succession, and contrast without being confused, provide opportunities for introducing the richest variety of dramatic material, and avoiding tardiness on the one hand, and precipitate revelation on the other, keep interest and enjoyment ever advancing up to the very last scene of all.

So that what a dramatist means by construction answers more precisely to what an architect has in his mind when he is contriving a plan, or more generally, to take a simple example, in combining the various elements that complete accommodation in an ordinary house. Both artists have a main purpose that governs throughout. The dramatist has, or ought to have, a primary theme, a specially characteristic collision of interests or feelings, of which the speciality is put into lively evidence by the varieties of humanity selected to be brought into apposition with it, or opposition. It is, in fact, when the author fails to bring out a decisively marked and interesting characteristic by shifting about from one theme to another, so that no one is predominant, or when he does not seem to know how to work out the proper resources of the theme that he has undertaken to develope, that as an architect looks on he is reminded of apartments disproportioned to each other, passages that lead to nothing or trespass on space ill-spared by rooms, and all appropriate juxtapositions and communications neglected, and even some omitted entirely.

If ever an architect has such sins on his conscience,—that "guilty creature sitting at a play" can never be more conscience-stricken than when he recognises a very compendious re-

flection of his errors in the "Adelphi" of Terence, agreeably represented otherwise as it may be before Mr. Cockerell's scene in the old dormitory of Westminster.

The fault lies with the ancient Roman, not with our young moderns; if, indeed, it is not rather to be carried back to the Greek, from whom Terence borrowed most of his play, if he did not translate his original frankly and freely. The Roman dramatist made no scruple of such borrowings; there was the less reason in one respect that he should, as the author of the Greek original had been dead and gone some century before, and there was no possible question of unexpired copyright. The only point of honour which the prologues admit obligation to, is not to re-adapt a Greek comedy that some contemporary Roman compatriot had already laid hands on. Even so ancient was that "courtesy of the trade,"—known to the present generation as dignified respect for the first appropriation of an English author's work,—that has just expired among American publishers.

The extraordinary flatness with which these Roman plays conclude is noteworthy. If there is one principle most honoured by the modern dramatic constructors, it is that all main interests that have been roused in the course of the action shall contribute more or less to excitement and subsidence at the conclusion. This lameness at the last is observable in Plautus as much as in Terence. Only in one of the twenty plays of Plautus is there anything approaching to a comprehensive interplay of dialogue in a last scene; the exception is the "Asinaria." Otherwise we might have charged the defect upon the Athenian Diphilus, from whom Terence took the "Adelphi,"—Diphilus, who, if an epigram can be trusted, was apt to err by frigidity. Thus it runs, preserved to us by Athenæus:—

> "Gnathæna! wine I never drank
> So cool as yours; once more refill it."
> "My Diphilus! yourself you thank;
> 'Tis with your comedies we chill it."

To return to the "Adelphi"; the construction is, of necessity, unsatisfactory from a flaw in the original scheme. Two brothers are brought up,—one by his father, another by his uncle,—upon contrasted systems of extreme severity and extreme indulgence. Both turn out equally dissipated, and the play ends with the severe father reconciling himself to allowing his pupil even greater licence of irregularity than his brother had always taken advantage of unchecked. The laugh is turned against the disciplinarian when it proves that his own pupil was the misdemeanant in riotous conduct of which the brother, with no character for steadiness to lose, had kindly borne the blame; and against the easy-going uncle when his good nature is imposed upon, and he is forced to carry out his principles by manumitting slaves right and left, and to take a wife at a moment's notice of whom he knows nothing. Elegance of language and versification nevertheless retain the interest of the audience for an action in which there is so little to excite sympathy in any but the abettors of lax morals in the young, and so little to stimulate laughter except for those who side with a triumph over the weakness or corruption of the elderly. Such was the judgment of Julius Cæsar, most distinguished of all the long line of theatrical critics, who admitted, in six excellent *vers de société*, the charm of the style of Terence, and so far gave him the credit of being half what Menander was, but complained of short allowance of the *vis comica* that was so unfailing a distinction of the Greek.

His nephew, Augustus Cæsar, seems to have been of the same mind, for his predilection was decided for the old-fashioned plays of Plautus,—so Suetonius tells us, and this goes far to explain the querulous expostulations of Horace, who, in his long epistle to Augustus, makes a hard fight to assert the superiority of the new school of poetry, and to persuade the emperor out of his better senses, that the old poets had nothing more to recommend them than the fact that they were old, a merit which, give it time, contemporary poetry would enjoy no less.

As regards the particular issue between Terence and Plautus,—Plautus with whose volumes Erasmus said he would be content to go on, give him but the New Testament as well,—let us appeal unto Augustus Cæsar, and cite the elder poet to speak for himself, and to speak a speech which always commends itself to ourselves, redolent as it is of bricks and mortar. It is the better, if not spoilt in the translation, for being read with the thought how it must have been enjoyed by the friend of Colet and Sir Thomas More, the author of that repertory of wit and wisdom, "The Encomium of Folly,"—"Encomium Moriæ."

But a word first as to comparative moralities. Plautus, who drew from the same Greek fountain-head the New Comedy of Philemon, Diphilus, Menander, and the rest, is quite as ready as Terence to adopt and adapt a plot of which the chief interest turns on the success of the young in cheating and debauchery, and can always find opportunities for exuberant wit, and for as much true humour as is consistent with restriction to certain well-established types of character. We are the more taken by surprise when, in the single instance of the "Captivi," in both prologue and epilogue, he makes a merit,—exceptionally among comedians he declares it,—of having presented a play which is free from any immoral stain either in language, characters, or incidents,—one by attending which those who are already good may become still better. And yet one word more for Plautus. He has given a representation of maidenly modesty that would be beautiful in the fiction of any time, and could scarcely be expected on the comic stage of the ancients. The daughter of a worthless old sycophant is required by him to help a plot by personating for a time, without further consequences, a woman of loose life and conversation. She protests to the utmost of her power, but in vain, and the picture is touching of how she preserves what dignity she may in the dialogue in which she is required to bear a part, by ingenious ambiguities of language that go some way to preserve her sensibility from admissions that her soul rebels against. But now turn we to the promised speech.

In the second scene of the first act of that most amusing play, the "Mostellaria,"—the "Haunted House," we may translate it,—*Philolaches* soliloquises, though with a not unusual occasional reference to the audience:—

> "I've long and often thought and argued deep,
> And in my heart (if I have any heart)
> Have long debated and resolved, What's man,
> Just born, to be compared to? and have now
> Found out his likeness. Man is a new house,—
> I'll tell you how; and though you think it so',
> I will convince you what I say is true.
> When you have heard, you'll think and say as I do.
> Lend me your ears and you shall hear my arguments,
> For I'd have all as knowing as myself.—
> As soon as e'er an edifice is plann'd,
> But it up in taste, and polish'd to exactness,
> The architect's commended: and his house
> By all approved; each takes it for a model
> And spares no pains, no cost to have one like it.
> But when a tenant comes, unthrifty, mean,
> Neglectful, with a lazy family,
> The fault is straight upon the building laid,—
> Good in itself, but kept in bad repair.
> Then, as it often happens, comes a storm,
> Demolishes the tiling, spoils the gutters,
> And the too careless owner takes no heed
> The damage to repair. A shower succeeds,
> Washes the walls, the roof admits the water,
> The weather rots the builder's edifice,
> The house grows worse by use; and in all this
> The architect is not at all to blame—
> A great part of mankind affect delay;
> And if it cost them money to repair it,
> Delay it still till every wall fall in,
> And the whole's then anew from the foundation.
> Thus much for buildings. Now, how men are like them.
> First, then. All parents are their children's architects;
> They first lay the foundations and then raise
> The superstructure of their education.
> They carefully add firmness; that they may
> Become good men and be an ornament,
> As well as use and safeguard to their country.
> And to such end they spare nor cost nor pains;
> Expense on this account they count for nothing;
> Refine their manners, teach them letters, laws,
> And by their cost and care endeavour still
> That other men should wish their children like them.
> Then to the army. There their fathers place them
> Under protection of some great relation;
> And so they pass out of the builder's hands
> Ere they have served a year. You then may see
> A sample how the building may turn out,
> For I myself, as long as I was under
> The builder's hands, was sober all the time,
> And honest. But as soon as e'er I follow'd
> My own inventions, I at once undid
> All that my architect had done before.
> Then enter'd Idleness,—that was the storm
> Brought on my hail and rain; quite overthrew
> My modesty and each restraint of virtue,
> And utterly untiled me. Headless I
> Again to cover in my edifice;
> Love like a torrent rush'd into my heart,
> O'erflow'd my breast, and soak'd quite through my soul;
> And now my fortune, credit, and fair fame,
> My virtue and my honour all have left me:
> By negligence, I'm grown still worse and worse;
> These rafters are so ruinous, so foul,
> With rotting moisture, that, by Pollux' temple
> I see no means remain to patch it up.
> The whole must fall, and its foundations fail
> Without a hand to help me."

Surely, now, the poet deserves that we should by anticipation respond to his appeal as the curtain fell,—or rather rose,—for such was the Roman way:—

> "The play is finish'd; give us your applause."

THE LATE MR. ANTHONY SALVIN, ARCHITECT.

THE late Anthony Salvin was the son of General Anthony Salvin, of Sunderland Bridge, in the county of Durham, and the representative of that branch of the ancient family of the Salvins of Croxdale. He was born, October 17th, 1799, was educated at the Durham School, and passed many of his early days with his uncle, the Rev. Wm. Nesfield, at Brancepeth Rectory. The restoration of Brancepeth Castle was then going on, and the youth, much interested in the operations, it may be, acquired the taste for architecture which determined his choice of the profession he followed during the remainder of his long and active life. He came to reside in London about 1820, and with his future brother-in-law, William Nesfield, the painter, mixed in the society of the art-world of that time, Turner, Prout, and others, and was for a short time in the office of Nash when the elder Pugin was in the office. He was elected into the Society of Antiquaries in 1824, and lived to be the oldest member. Salvin began practice at an early age, as in 1828 he built Mamhead, near Exeter, for Sir Robert Newman, at a cost of about 20,000*l.*, and in the same year Morby Hall for Mr. Henry Preston, at a cost of 40,000*l.*, while in 1829 he had the gratification of being called in by Mr. Russell to restore the Great Hall at Brancepeth Castle, the building which inspired his career.

Then followed in quick succession such works as Methley Hall, in 1830, for the Earl of Mexborough; Parham, for the Hon. Robert Curzon; and many others of equal importance. Mr. Salvin was consulted for many years on all matters relating to Government castles, and his skill and knowledge of Mediæval fortresses were generally admitted. His careful study of the remains of English and Welsh castles, in all their details, is shown by his sketches, which are admirable for their artistic merit and archæological knowledge. Amongst the most successful of his works may be named Peckforton Castle, which was built from the foundation for Lord Tollemache. He also restored the Beauchamp Tower, and Traitors' Gate, at the Tower of London. The manner in which Caernarvon Castle has been kept from ruin may be credited to Salvin's influence in high quarters, and his enthusiasm for our ancient work.

At Windsor Castle he considered himself somewhat controlled in the restoration of the Curfew Tower; but in all things he earnestly endeavoured to be conservative. Alnwick Castle was restored by Salvin for Algernon, Duke of Northumberland, between the years 1852 and 1861. This was his great work, and the outlay was large. The decoration of the interior was controlled by the Duke, who insisted on its being carried out in the Italian Cinque-cento style, and for this purpose Cardinal Antonelli, at the Duke's behest, persuaded Commendatore Canina to come from Rome with a number of Italian artists and carvers; but the whole of the internal work was under Salvin's direction.

Keele Hall, in Staffordshire, near Newcastle-under-Lyme, built for Mr. Ralph Sneyd, between 1855 and 1862, is spoken of as one of the best planned houses in England, from its clever adaptation to the ground. The court-yard is on a low level, and a flight of steps, similar to the ancient arrangement of Parham Court, approaches the great hall on the first floor, on which the principal apartments are arranged, the basement being occupied by servants' offices. The whole shows attention to old work. Amongst his later works, Thoresby Hall, in Notts, commenced in 1864, for Earl Manvers, and finished 1875, is conspicuous; and the restoration of Dunster Castle, for Mr. G. T. Luttrell; Petworth House, for Lord Leconfield; Longford Castle, for Lord Radnor; Eucombe Hall, for Lord Eldon; and Birdsall House, for Lord Middleton, are all works of importance. Salvin may be said to have died in harness, at the age of eighty-two years.

As late as last year he was building a house in Chesterfield-gardens for Lord Leconfield, when the growing infirmity of age compelled him to relinquish the task. But his work did not end here, for within the last few months, and greatly at his own expense, he interested himself in the restoration and enlargement of the church in the village of Fernhurst, Sussex, near which he lived during the last seventeen years of his life. His anxiety at the last was that the bells which he had bestowed should be hung in the new

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tower and tone his departure. He died on the 17th of December, 1881.

Salvin was a true gentleman that the profession may be proud of, a man of business, and courteous, as all who knew him, employers and employed, will acknowledge. W. E. N.

A list of his works, as far as can be ascertained, is appended,—

Before 1826:— House in Durham.—Dr. Cook.
Brancepeth Castle.—Mr. Matthew Russell.
Church of Northallerton.
1827. Norwich Cathedral, west front.
Harlaxton Manor (or Hall).—Mr. Gregory.
1828. Mamhead.—Sir Robert Newman, bart.
1828-33. Moreby Hall.—Mr. Henry Preston.
1828-33. Somerhill.—Mr. James Alexander.
1829. Brancepeth Castle, Durham, alterations in hall, &c.—Mr. W. Russell.
1830-36. Methley Hall.—Earl of Mexborough.
1831-32. Sunderland Chapel.—Lord Crewe's Trustees.
1831-33. Barley Rectory.—Rev. W. Turner.
1832-36. Farham.—Hon. R. Curzon.
1830-32. Ulverstone new church.—H. M. Commissioners.
1833. Stoke Green House.—Lieut.-Col. Rolfe.
1835-39. Burwarton House, Ludlow. — Hon. G. F. Hamilton.
1835. Grosvenor House alterations. —Marquis of Westminster.
1835-46. South Shields, new church.—Dean and Chapter of Durham.
1836. Keswick, new church.—Mr. J. Marshall.
1836. Cowsley Hall.—Mr. G. Lloyd.
1837. Seaton Carew Parsonage.—Rev. A. Guinese.
1833-35. Durham University.—The Warden and Trustees.
1834. Sheldon new church.—A Committee.
1835. North Runcton.—Mr. Daniel Gurney.
1836. Chalfont House.—Mr. John Herbert.
1836-41. Danesfield.—Mr. C. Scott Murray.
1836. Woodlands.—Mr. W. Ley.
1837-43. Scotney Castle.—Mr. E. Hussey.
1838. Shutterskelf.—Viscount Falkland.
1838-40. Rufford Abbey.—Earl of Scarborough.
1839-48. Greystoke Castle.—Mr. H. Howard.
1838-40. Burtonfield, York.—Mr. C. Darley.
1837-45. Heath Hall, Wakefield.—Mr. T. G. Smith.
1839. Moor Park (work in terraces). — Marquis of Westminster.
1839-41. Sand Hutton, near York.—Mr. J. Walker.
1840-41. Durham University.—Warden and Fellows.
1840-45. Worden Hall, near Chorley. — Mr. J. N. Harington.
1840-41. Spittlegate, Grantham, new church.—A Committee.
1841. Kilndown, Goudhurst, new church.—A Committee.
1841. Ley Fields.—Earl of Scarborough.
1841. Willow House.—Earl of Scarborough.
1841. Esholt Hall, new chapel.—Mr. W. R. Stansfield.
1841-42. Sherborne House.—Lord Sherborne.
1841. Grantham, new savings bank.—Trustees.
1841-42. Deston, new rectory.—Rev. G. Potchett.
1842-43. Trinity College, Cambridge, Master's lodge.—The Master and Fellows.
1842-43. Flixton, Suffolk, Priest's house.—Sir R. Shafto Adair, bart.
1843. Ayott St. Peter's Rectory-house.—Rev. E. Prodgers.
1843-45. Arley Chapel.—Mr. R. E. Warburton.
1843-44. Hemel Hempstead Church, restoration.—Churchwardens.
1843. St. Pancras, Christ Church.—Rev. W. Dodsworth.
1844. Cambridge, Church of Holy Sepulchre, restorations.—A Committee.
1844-47. South Otterington Church, rebuilding.—Mr. W. Rutson.
1844-47. Durham Cathedral, reseating choir.—Dean and Chapter.
1844-46. Kelham Hall.—Mr. J. Manners Sutton.
1844-45. Newark Castle, repairs. — Commissioners of H.M. Woods.
1845. Carisbrook Castle, repairs.—Commissioners of H.M. Woods.
1845. Newark, new baths.—A Committee.
1845-48. Castle Rising Church, Norfolk, restoration.—Hon. Col. Howard.
1845-46. Lynn, new church.—A Committee.
1845-46. High Cross, new church, new parsonage.—Lady Louisa Giles Fuller.
1845. Tabley House.—Lord de Tabley.
1844-48. Blackdown House, Haslemere.—Captain Henry.
1844-50. Flixton Hall, Suffolk.—Sir R. Adair.
1846-51. Hafod, North Wales.—Mr. Henry Hoghton.
1846-48. Haworth Castle.—Earl of Carlisle.
1846-48. Pennoyre House.—Lieut.-Col. Lloyd Vaughan Watkins.
1846-50. Peckforton Castle, Cheshire.—Mr. John Tollemache.
1846-48. Oxon Hoath.—Sir W. Geary, bart.
1845-50. Tatterdale Hall.—Mr. W. Marshall, M.P.
1847. Runcorn, new church.—A Committee.
1847-48. Carnarvon Castle, restoration.—Commissioners of H.M. Woods.
1848. Torquay, new church.—A Committee.
1848. Wern Eynon, additions.—Mr. J. H. Vivian.
1848. South Park.—Viscount Hardinge.
1848. Stapeley House, near Nantwich.—Rev. James Folliott.
1848. Hatfield Hall, Durham University.—The Warden.
1857. Wells Cathedral Choir.—Dean and Chapter.
1849. Greystoke Church, chancel rebuilt.—Mr. Henry Howard.
1849. Shepherd's Bush, St. Stephen's new church.—Bishop of London.
1851. Shepherd's Bush, St. Stephen's parsonage-house. Bishop of London.
1849. Langley Hall, alterations.—Admiral Sir W. Proctor.
1849-51. Rockingham Castle.—Hon. R. Watson.
1849. Finchley Rectory.—Rev. T. R. White.
1849. Lanercost Priory, restoration.—Commissioners of Woods.
1849-51. Freethorpe Church, Norfolk.—Mr. H. Vade Walpole.
Goring, new farmhouse.—Mr. David Lyon.
1850-53. North Wootton Church.—Hon. Mrs. Greville Howard.
1850. Derwent Sole House.—Mr. Henry Marshall.
1851. Lanercost, parsonage-house.—Earl of Carlisle.
1851. Norwich Bank.—Messrs. Gurneys.
1851. Juniper Hill.—Mr. Cuthbert Ellison.
1851. Rothbury Church, Northumberland, restoration.—Rev. Vernon Harcourt.
1851. Sailsbury Schools.
1851. Betshanger Church.—Sir Walter James, bart.
1854. Betshanger Lodge.—Sir Walter James, bart.
1852. Stoke Holy Cross, Norfolk, mansion.—Mr. Henry Birkbeck.
1860. Stoke Holy Cross, Norfolk, farmhouse.—Mr. Henry Birkbeck.
1852. Bangor Castle.—Mr. R. R. Ward.
1852. Highgate National Schools.—A Committee.
1852-55. Balliol College, Oxford.—The Master and Fellows.
1852. Wilderness Park.—Marquis of Camden.
1852-53. Trinity Hall, Cambridge.—The Master and Fellows.
1853. Little Stanmore, new rectory.—Rev. B. Tuson.
1852. Highgate House.—Mr. Harry Chester.
1852-61. Alnwick Castle and estate improvements.—Duke Algernon of Northumberland.
1851-52. Sudbury Hall, Uttoxeter.—Lord Vernon.
1853-57. Torquay, new church, Upton.—A Committee.
1853. Lower Rover Church.—A Committee.
1853. Rose Castle, Carlisle, restoration.—Bishop of Carlisle.
1853. High Legh, new schools.—Mr. George Cornwall Legh.
1853. Aldridge Church.—A Committee.
1853. Worden Hall, New Lodge.—Mrs. Harington.
1853-55. Caius College, Cambridge.—Master and Fellows.
1853. Tatterdale, new church.—Mr. W. Marshall.
1853. Arley Hall.—Mr. R. E. Warburton.
1853. Warboys, new schools.—Rev. W. Finch.
1853. Warboys, rectory.—Rev. W. Finch.
1853. Lympsfield schools, Surrey.—Mr. Wm. Leveson Gower.
1853. Wilby Church, Northamptonshire, restoration of chancel.—Rev. R. Stockdale.
Tower of London.
1853. Beauchamp Tower, restoration.—Commissioners of H.M. Woods.
1857. Salt Tower, restoration.—Commissioners of H.M. Works.
1861-62. White Tower, armoury, council chamber.—War Office.
1864-66. White St. Thomas Tower.—Commissioners of H.M. Works.
1867-68. Warders' new quarters.—Commissioners of H.M. Works.
1867-69. New Jewel Room, Wakefield, St. Thomas Towers. Commissioners of H.M. Works.
1854. North Runcton, additions.—Mr. Daniel Gurney.
1854. Yarmouth Bank.—Messrs. Gurney.
1854. Newfoundland, new church at.—Mr. Thos. Newman Hunt.
1854. Over Tabley, new church.—A Committee.
1854. Queenstown, new club house.—J. H. Smith Barry.
1854. Trinity Hall Lodge, Cambridge. — Mr. T. C. Geldart.
1854. Weaverham Church, Cheshire, restoration.—A Committee.
1855. Scotby New Church, Cumberland.—Mr. G. Head Head.
1855-63. Keele Hall, Staffordshire.—Mr. Ralph Sneyd.
1855. Headley New Church, Surrey.—Hon. Mrs. Greville Howard.
1855. Lindisfarne Abbey, restoration.—Commissioners H.M. Woods.
1856. Hartford, Huntingdon, new house.—Mr. W. H. Desborough.
1856. Abbotts Ripton, Huntingdon. — Rev. P. P. Rooper.
1856. Rock Church, Northumberland, restoration.—Rev. N. W. Bosanquet.
1856. Buckworth Rectory.—Rev. J. D. Shafto.
1856. Upper Tooting, new church.—A Committee.
1856-58. Marbury Hall, Cheshire.—Mr. J. H. Smith Barry.
1856-57. Carlisle County Hotel.—Mr. Geo. Head Head.
1857. Trinity College, Cambridge, alterations.—The Master and Fellows.
1857. Shouldham Thorpe Church, Norfolk, additions and restoration.—Sir. Thomas Hare, bart.
1857. Great Ellsworth Church, alterations.—A Committee.
1857. Diddington Hall, Huntingdon.—Mr. Geo. Thornhill.
1857. Dutton Chapel.—Lord de Tabley and Mr. J. H. Smith Barry.
1857. West Cowes Castle, Isle of Wight. — Commandant Royal Yacht Squadron.
1857. Silkstone Church, Yorkshire, restoration.—Mrs. Clarke.
1857. Vine Cottage, Cambridge.—Professor Selwyn.
1858. Church Fenton, restoration of church.—A Committee.
1858. Sherburn Church, Yorkshire, restoration.—A Committee.
1858. St. Mary's-the-Great, Cambridge, chancel.—Trinity College.
1858. Durham Library, restoration, &c.—Dean and Chapter.
1859. Congham Hall, Norfolk.—Mr. R. W. Elmes.
1859. Somerford Hall.—Sir C. Shakerley.
1860. Farham Church, Cumberland.—A Committee.
1860. Torquay, St. Mark's new church.—A Committee.
1860. Torquay, St. Matthias's new church.—A Committee.
1860. Mears Ashby Hall, Northamptonshire.—Captain Stockdale.
1860-62. Horsley House.—Mr. J. R. Hildyard.
1860-68. Trinity College, Cambridge; the Master's Court; the Master's Second Court. — Rev. W. Whewell, D.D.
1861-62. Aberford Church, Yorkshire, restoration, &c.—A Committee.
1862. Tupton House, alterations.—Lord Churston.
Churston Schools.—Lord Churston.
1861-62. Windsor Castle, embankment wall and 100 steps; new guard-room; Bell and Garter Towers, restoration; Henry VII.'s Library, restoration; Waterloo Gallery, restoration; Norman Tower, restoration; grand staircase.—Commissioners of H.M. Works.
1862. Windsor Castle, Orary Tower, restoration.—Dean and Chapter of Windsor.
1862. Bolton-le-Gale Church, restoration.—A Committee.
1862. Whitehall, Cumberland.—Mr. Geo. Moore.
1862-66. Muncaster Castle, Cumberland.—The late Lord Muncaster.
1863. Flixton Church, restoration.—Sir R. S. Adair, bart.
1863-66. Warwick Castle.—Earl of Warwick.
1863. Whickham Church, Durham.—A Committee.
1863-64. Tynemouth, new churches, viz.:—North Shields; Whitley; Percy Main.—Duke of Northumberland.
1864. Cambridge Free Grammar School. — Caius College.
1864. Crossrig Hall.—Colonel Rigg.
1864-65. Cambridge, new museums.—The Senate of the University.
1866. Cambridge Anatomical and Chemical Schools.—The Senate of the University.
1864-75. Thoresby Hall and stables.—Earl Manvers.
1864-73. Brancepeth Castle.—Viscount Boyne, the late.
1866-69. Capesthorn Hall, part by Mr. A. S., jun.—Mr. A. H. Davenport and Mr. W. H. Bromley Davenport.
1866. Lazonby, new church.—Mrs. Maclean.
1866. Nateby Scures Church, restoration.—Colonel Carleton.
1866. Stanwick Parsonage. — Dowager Duchess of Northumberland.
1867. Stanwick Church.—Dowager Duchess of Northumberland.
1866. Parkhurst, new house.—Mr. Cotsford Burden.
1867. Windsor Great Park, the Royal Chapel.—Commissioners of H.M. Woods.
1867-68. Fawsley Hall.—Sir Rainald Knightley.
1867. Hampton Court Palace, reseating Royal Chapel.—Commissioners of H.M. Works.
1868. Worth Maltravers Church, restoration.—Earl of Bidon.
1868. Simonbrom Church, restoration.—Colonel Chateris.
1869. Northumberland House, new ball-room.—Duke of Northumberland.
1869. Albury House, Surrey.—Duke of Northumberland.
1868. Windsor, new stables.—Dean and Chapter of Windsor.
1869. Hutton Hall.—Sir H. Vane.
1869-70. Worth Church, Sussex, restoration.—A Committee.
1869-72. Dunster Castle.—Mr. G. F. Luttrell.
Paddockhurst.—Mr. Geo. Smith.
1870. Virginia Water, royal fishing cottage.—Commissioners of H.M. Woods.
1870-72. Petworth.—Lord Leconfield.
1870-75. Longford Castle, in progress Christmas, 1875.—Earl of Radnor.
1871. Flixton Parsonage.—Sir Shafto Adair, bart.
1871-74. Encombe Hall, Dorsetshire.—Earl of Edon.
1871-72. Cumberland Lodge, Windsor.—Commissioners of H.M. Woods.
1872. Melbury House.—Lord Ilchester.
1872-74. Rogate Lodge.—Mr. Hugh Wyndham.
1872-74. Muncaster Castle; Church; Parsonage.—Lord Muncaster.
1872-75. Bridsall House, Yorkshire.—Lord Middleton.
1873-75. Osborne House.—Mr. C. S. Roundell.
Burwarton Church.—Viscount Boyne.
Thoresby, new church.—Earl Manvers.
1875. Sedgefield Church.—A Committee.
1876. Greystoke Castle.—Mr. Henry Howard.
1875-78. Greystoke Castle.—Mr. Henry Howard.
1876-77. Burwarton Hall.—Viscount Boyne.
1877. Cumberland Lodge, Windsor Great Park.—Commissioners of H.M. Woods.
1878. Royal Lodge, Windsor.
1878. Longford Castle.—Earl of Radnor.
1878-79. No. 9, Chesterfield-gardens, Mayfair, new mansion.—Lord Leconfield.

BERLIN AND PARIS.

The building activity which at present seems so universal in the great cities of the world,—in New York, where "flats" are being erected with a rapidity that anywhere else than across the Atlantic would be extraordinary; in Vienna, as has been noticed in these pages; in England, as our readers know well; in Paris, as recent accounts amply show,—is no less remarkable in Berlin. In the German capital new buildings are rising, and new means of communication are being laid out, chiefly, it appears, at the West End, a feature to be remarked in most capitals, arising probably from the fact that it is the south-westerly winds that prevail in the year, thus leaving the atmosphere of the west end clear. In Berlin this rule holds good: squares, public gardens, and public promenades, planted, of course, with the favourite linden and chesnut trees, and amply supplied with granite seats, are being laid out. The Bourse is being enlarged, and a new bridge is to cross the Spree, obliging the opening of a new street and the widening of several others in the neighbourhood. It is, however, as previously remarked, at the West End, in the fashionable neighbourhood, that building is most active. It was here that was recently opened by the Crown Prince the Industrial Museum,* a magnificent quadrangular three-storied edifice, which cost over three millions of marks, the work of the architects Gropius and Schmieden, a museum containing a mass of artistic treasures, among them Dr. Schliemann's Trojan antiquities, and a choice selection from the Prince of Wales's Indian collection. In addition to the museum, now completed, is being built a new theatre, to be as im-

* It will be remembered that the Crown Princess did not neglect on this occasion to refer in a few feeling words to the work of her father, Prince Albert, in the direction of technical education.

portant as any of the existing Berlin theatres, the Wilhelm Theater, the Friedrich Wilhelm, or the Victoria. The name of the new house has not been determined on, decision hovering between the Augusta or the West-end Theater. We may rest assured that the sad series of accidents which have lately been so terribly frequent in the theatres of the great capitals, will cause all due consideration to be given to the point of the safety of the public, and the recent and most terrible of all these, in the twin German capital of Vienna, will lead to still further precautions being taken in this direction. Such events seem to come cruelly to force lagging improvements,—improvements which, at the same time, can avail but little where panic is found to paralyse those very persons behind the scenes who, at such moments, should have about them their utmost presence of mind; it is alone by rehearsal of the part to be played by each in case of fire that its real presence can be combated. Firemen are never flustered; in the recent Cheapside fire we saw how fire-drill rendered a number of young warehousemen excellent aids to the fire-brigade. In this matter of fire-drill at the theatre, our own experience can fully confirm the statement of a writer to one of our daily papers, who mentions the successful action at the Munich Court Theatre (on the occasion of a fire there some time since) of the iron curtain,—dropped every night after the performance, and thus kept in perfect working order,—and the shower-bath taps behind the scenes. Here, as in every other point of its model management, which should be studied by all theatrical managers, the Munich Court Theatre showed that its *personnel* was admirably drilled.

In Paris, the building activity to which reference has so often been made continues apparently unabated. Here again, as in London and Berlin, it is at the west or fashionable end that the masons are busiest. The district between the Trocadéro and the Champs Élysées,—already so crowded with rich American and English residents,—is rapidly filling with huge five-storied stone mansions, in the construction of which enter none of those restricting considerations of short leases such as hamper so seriously the builder in England. In the Rue Pierre Charron (the former Rue de Morny) where the building activity is especially remarkable, there are several houses being erected worthy of notice as differing from the familiar Parisian type. One of these, at the end towards the Trocadéro, is, we learn, being built by the Comtesse de Gueridas, and is intended to serve as a museum of Roman and Egyptian antiquities, which, when completed, will be presented by the owner to the City of Paris, a princely gift; near this house the "Nationale" Insurance Company is erecting a group of magnificent dwelling-houses, five stories high, and which have now reached the third floor. The Paris Insurance Companies have been lately largely adorning the capital with the edifices they have been erecting each block,—they are to be found scattered over the fashionable quarter, in the Boulevard Haussmann, the Champs Élysées, and elsewhere,—bearing on a highly decorated marble tablet the name of the company by which the house has been erected. It can be understood that in this investment of their capital,—the returns from which in Paris are ample,—the companies insure the solidity of the work. It would be desirable, were our leasehold laws differently conceived, to see this plan more largely adopted on this side of the Channel. At no great distance from the "Nationale" Insurance Company's block, in the Rue Pierre Charron, is being erected a comparative novelty in Parisian street architecture, not too largely broken by eccentricity; a wealthy manufacturer of electric apparatus is building a two-storied house, the façade to be adorned with coloured faïence, and two large medallions, one to receive a clock, the other a barometer. It is to be a novelty in the direction of polychromatic architecture.

Before we leave the Trocadéro, let us not forget to mention,—as bearing on a subject recently alluded to in these columns, the artistic value of collections of casts,—the opening of a portion of the Cast Museum at the Trocadéro. At the time of the death of the late Viollet-le-Duc, reference was made in these pages to the scheme the eminent architect had drawn up of forming a Museum of Casts, to show the development of French sculpture as applied to architecture. The Commission of Historic Monuments took up this excellent idea, and since 1879 the special sub-commission,—which included among its members such well-known names as M. Proust, the present Minister of Fine Arts, M. du Sommerard, and Viollet-le-Duc fils,—has met almost every week; the result of this energetic action is the museum now opened at the Trocadéro Palace, one wing of which has been set aside for the purpose. Seven divisions have been made for each century since the twelfth, and a workshop and warehouse supplied in the cellars. No fewer than 300 specimens have been already gathered, some of considerable size, over 30 ft. long. At present only two rooms, those devoted to the twelfth and thirteenth centuries, have been opened, but these, as may be imagined, supply an ample fund of most interesting inquiry. The memory of the ex-minister, M. Ferry, and his Under-Secretary for the Fine Arts, deserves to be cherished for this fresh addition to the artistic treasures of the capital and its numerous educational establishments. Above the door of the new museum, it may be mentioned, has been placed the following label,—"Commission des Monuments Historiques. Musée de Sculpture comparée." It is in museums of this kind that the artist obtains that historical knowledge of his profession that leads him to further inquiry, and that love of the great works of the past that must leave an enduring impression on the works of the present and the future.

We have not yet done with Paris, where the progress of the new Hôtel des Postes is deserving of mention. The works, which, when some months ago we saw them, were still below ground, have now, with the rapidity for which building in Paris is famous, reached the first story, and some idea of the general appearance of the building can be formed. The new Post-office will be a large quadrilateral. There are to be three stories above the ground-floor, which latter is to be devoted entirely to the service of the public, and the yard to the mail-carts. On the first floor the letters are to be sorted; on the second, delivered to the carts. It is on this floor that the officials are to be lodged. On the third floor are the books and documents, and the store-rooms. Below ground will be situated the stables, the stamping-rooms, and the pneumatic apparatus. A double balance lift is to place all the floors in communication. A gallery, some 60 yards long, on the ground-floor, will contain, ranged on each side, in addition to the telegraph bureau, all the various other departments for the public convenience,—offices for registered letters, sale of stamps, &c., and an information bureau. The new Post-office, it may be remarked, when completed, will serve alone for the Paris correspondence, the country and foreign service will then be transferred to the residence of the Minister of Posts and Telegraphs. The new Post-office has already knocked a considerable amount of daylight into the gloomy and once fashionable quarter in which it is situated, and the value of land has, as may be imagined, risen to astounding prices, even for Paris.

As a last note from Paris, it may be mentioned that the neighbouring Bank of France is about to be enlarged on the western side, and the Rue Radziwill, a street which, though within but a few yards of the Palais Royal and the "Strangers' Quarter," we feel sure many an old visitor to Paris scarcely knows, will be built over. Eminently signs of the times these, the enlargement of the Bank and the Post-office.

As for the announcement of another Industrial Exhibition to be held in Paris next year, the professional world must wait till some further details are made known than those which have so far appeared.

Though there are those who have been recently telling us that they have a right from personal experience to state that the seasons have changed, winter still brings with it the need for fires; the heating of our houses, bringing in its train the necessity for the consideration of the appalling quantity of smoke produced, may fairly be said to be the burning question of the day. We hear of it in every quarter, discussed as it has never before been discussed; we have been for generations satisfied in England with our open grates and well-filled coal-scuttles, for we have long since ceased habitually to burn wood as our neighbours the French continue to do. There, as indeed with us, among middle-aged persons, the importance attached to the fire and its management is a marked feature of winter life. Every one must have met among his acquaintances some member whose pleasure it is, tongs in hand, to make up the fire, with infinite care piling up little piece of coal after little piece till the edifice is complete. In France, among the relics of the old society, there remain, just the same, those who regard themselves as the sole possessors of the secrets of fire-building, and fortunate is the outsider who may happen to meet any one kind enough to explain to him the art and mystery. He learns, in the first place, perhaps after breakfast on some wintry morning, that a servant is, and ever will be, incapable of making a fire, and then, tongs in hand,—*badine*, as the long flexible instrument is called,—the informant begins to build up the fire over the log or *buche*, each piece of wood touching its neighbour with due spaces for draught, the whole crowned with a mass of charcoal embers from the grate beneath. This, the morning fire, one is told, is made of hornbeam, oak, or apple wood, which, compact in fibre, generously distributes its heat and leaves a glow of embers. The after-dinner fire is very different it is to be made up exclusively of beech wood,—the champagne of combustibles,—helping the digestions of the diners by its brilliant, cheery aspect, spurting out from time to time in sparkling flashes on the group gathered round the fire. We can imagine our wood-burning forefathers enjoying something of this luxury of fire-building, the joy of the old, the consolation of the solitary. Prosaic, smoky coal has even seen wound round it some romance with its fire-pictures, and the slumbering embers, the cleanly cannel in our coal-consuming country being the champagne of the English hearth; but the days of coal now seem numbered, and gas is ruling triumphant, as in the distance looms the production of heat by dynamic energy.

THE EXCAVATIONS AT OLYMPIA.

AT a recent meeting of the Society of Architects of Berlin, Professor F. Adler delivered an address on the results of the excavations at Olympia. The diggings were commenced on the 4th of October, 1875, and, after six laborious seasons, were brought to a conclusion on the 20th of March of the present year. The entire expense of the series was defrayed by the German Government and the German Emperor; and in return Germany was permitted to appropriate any duplicates of objects found in the course of the excavations.

Professor Adler, who shared with Professor E. Curtius the honour of chief place in conducting the work, pointed out that these excavations were only intended to resume the task which the French had commenced in the year 1829, but which, notwithstanding that numerous important finds of ancient remains were made, they never carried beyond the preliminary stage.

The centre of Olympia, Professor Adler said, was undoubtedly the altar of Zeus. This, however, had manifestly been at a later time removed from its first and original position on the Kronos Hill to a spot that had been identified by the objects found on it, in the valley of the river Alpheios. Not far from the centre stood the altar of Hera, and a little further still the heroes' place of Pelops. This was enclosed with walls and planted with sacred trees. At a little distance further stood the shrine of Demeter, the mother of the gods. The four spots here mentioned formed, as could be shown from history, the starting-points around which gathered in the course of time a number of structures, large and small, devoted to a great variety of purposes. First we have the extensive Temple of Hera, which was in the Doric style; a little further, the hypæthral Temple of Zeus; and then, on the southern declivity of the Kronos Hill, an entire row of twelve treasure-houses close together. At a later date there was added the Prytaneion, with the sacred altar of Hestia, a building intended for the authorities at the contests and for the reception of the victors. Next we find extensive galleries or stands covered in, which were intended to afford a shady spot for the spectators of the festival processions; further, the Bouleuterion, probably used by the managers of the contests and of the sacred enclosure generally. Then there was a peculiarly-formed group of structures with two long and extensive side buildings and a square building in the centre, containing the altar of Zeus Horkios, where the competitors in the athletic struggles used to take the oath to observe the rules of the contest. The laying-out of the grounds on which the Olympic games were held proved to be exceedingly simple. The chief

spots were the Stadion and the Hippodrome; the latter had been for the most part effaced by the inundations of the Alpheios, so that it could only be very imperfectly identified. The remains had been found of the Gymnasion and Palaistra, and other buildings where the young athletes went through their courses of preliminary training and practice. One place, which in later centuries had been turned into a Christian church, appears to have been the actual *atélier* of Phidias, in which that sculptor prepared his celebrated chryselephantine statue of Zeus. Several buildings that were evidently of the Roman period had been only touched, and not completely laid open. The entire grouping of the numerous buildings which had been laid bare at Olympia shows that the ancient Greeks understood well how to turn the peculiarities of the site to the best advantage, both for the purposes of religion and of the festive games.

The task the expedition for excavations had before it was not only to clear up our notions respecting the size, plan, and general aspect of the chief centre of Greek festivals, but also to seek for any plastic remains that might still be discoverable on the site. Of bronze objects, such as were common in the earlier periods of Hellenic art, the excavators were unable to find a large number. It is probable that most of the bronze remains of value that were still in existence in the sixth century, A.D., were carried off by the invaders who plundered Olympia at that time, and perhaps repeatedly smelted and employed for other purposes. One of the most important objects found is the portrait-bust of a Greek who is unknown, but who was three times a victor at Olympia. This is a work of the first order. No less valuable are several heads of Zeus, and a variety of other objects, including several large archaic bronze reliefs, metallic vessels, weapons, and weights, as well as many well-preserved fragments of statues, such as arms, hands, and feet.

The number of marble groups and statues found is 130. In the number there are thirty figures with heads. Of the twelve metopes of the Temple of Zeus, with the twelve labours of Hercules, all except one have been found in a more or less complete state of preservation, so that a general reconstruction of the series will be feasible. Among the statues, as the world has already learned, the great acquisitions are the Niké of Paionios and the Hermes of Praxiteles. The latter is, beyond question, the gem of the whole series of the plastic works discovered. It is, indeed, an object of priceless value. By its help it is possible for us for the first time to form an adequate judgment of a Greek original by an acknowledged master of the first rank in marble statuary.

Another most important class of discoveries is the inscriptions. These are numerous, and extend from the earliest times to the fourth century of the Christian era. There is a wide field for study in these literary remains. The same may be said of the numerous coins and smaller bronze articles which have been obtained.

As regards the architectural remains, it was of great interest to find, if possible, any examples or types of any classes of structures that might have hitherto been unknown, while, on the other hand, in the case of known styles the remains could not fail to be of value for the comparison they would enable us to make with existing or known structures. Among the former class of hitherto unknown edifices may be mentioned the Palaistra, the Prytaneion, the Boulenterion, and the treasure-houses. These really fill up a large gap in our knowledge of Greek life and architecture. The comparison of the remains found at Olympia with the Greek edifices hitherto known is a task on which scholars and architects are still engaged, and on which they will probably yet have to spend much time before the results of their labours can be known, and before it will be possible to reconstruct on paper or in model the different separate buildings. It is a gratifying fact that the number of architectural remains found at Olympia is very extensive. Their preservation is due to the circumstance that when the barbarians from the North invaded Greece, and swept over the Peloponnesus, the latest Greek inhabitants of Olympia built strong walls round their district, and were compelled for this purpose to pull down and employ many of the old monuments and buildings.

During the concluding series of the German excavations, great attention was paid to that often obscure and neglected portion of architecture,—the question of the underground work and foundations. This portion of the work was entrusted to Herr Gräber, and he had succeeded in identifying, within a comparatively small area, no fewer than 120 distinct sets of drains or pipes, intended some of them for carrying off sewage, others for bringing water to the different edifices. Herr Gräber found the pipes to be of various materials and dimensions. The levelling, on investigation, showed that both in the sewage drains and in the pipes for water supply the natural fall of the ground had been taken advantage of throughout, and that reservoirs at an elevation had been employed.

Another class of objects abundantly found consisted of roofing-tiles. These had been systematically sorted and arranged, and the result showed beyond dispute that the well-known and greatly-admired marble roof of the Greeks had been preceded by a long period of development, when ceramic tiles only were in use, before the perfection that was still acknowledged had been attained. The oldest roof among the Olympian edifices was probably that of the Temple of Hera, and this exhibited the well-known style of "monks and nuns" common in Mediæval times.

One of the most important discoveries was that of the Treasury of Gela, which had only been found in the latest stage of the excavations. This had in front a colonnade, while it had two gables or pediments at the sides, thus presenting three aspects. The architecture at the summit of this stone building consisted of pieces of terra cotta, of bright colour, and fastened by nails. Herren Dörpfeld and Borrmann, two of the German officials employed at Olympia, on their journey home visited Sicily, and found that terra-cotta materials had been similarly employed in the Greek settlements there, at Selinus, Gela, Akræ, and other places. It appears, therefore, now certain that this style of building was pretty general among the Greeks about the fifth or sixth century B.C. The different kinds of terra-cotta exhibit the most varied and interesting transformations. Thus the waterspout may be followed through various developments, from a simple plain pipe to the richly-ornamented lion's mask.

Herr Dörpfeld had further the merit of having thoroughly examined in its technical aspects the much-neglected question of the Greek measures. This he had done by investigating the grounds and buildings at Olympia. After repeated and most careful measurements, Herr Dörpfeld had succeeded in demonstrating from the Temple of Zeus that the normal Olympian foot was 0·3204 mètre in length. The Stadion was known to be 600 Olympian feet long, and he had tested and proved the correctness of his measurement on the Olympian course itself. It is true that there was an earlier measurement of the foot prevalent about the time of the tyrant Pheidon, and by measurements on the Temple of Hera this foot was shown to be equal to 0·297 mètre. The later edifices erected at Olympia were based on the Roman foot, which was only 0·296 mètre in length. It is somewhat surprising that of the best known and commonest measurement among the ancient Greeks, namely, the Attic foot, there was no trace at Olympia. This is probably due to political jealousies, as there is at Olympia not a single trace of the Attic style of architecture. The Athenians, we know, were not popular with the Greeks of the Peloponnesus. The Doric, Ionic, and Corinthian styles, on the other hand, are all represented in the most varied combinations.

Finally, it is to be noted that at Olympia has been found the oldest specimen of the vaulted style of architecture of ascertained date. This is at the so-called secret entrance to the Stadion, which was used by the competitors and judges at the athletic games and contests. The passage is 100 Olympian feet in length, and each vault is constructed of fourteen wedge-shaped stones connected by bronze fastenings. There is also a second very interesting, but later, vaulted structure. This is the so-called Exedra of Herodes Atticus, the Sophist, and dates from the second century A.D. This latter work is specially deserving of attention, both on account of its peculiar construction and because it has traditionally exercised an influence on later works of the kind down to the period when the High Renaissance was flourishing at its prime.

Balmoral.—Mr. A. Anderson, architect, has been appointed Inspector of Buildings for the Queen at Balmoral Castle, in place of Mr. J. Beaton, retired.

THE CITY OF CHESTER.

Amongst British cities, Chester stands alone. Alike in its history and its architecture, in its commerce, in its walls and walks, in the public spirit of its citizens, the quaint old city presents a contrast to many much larger. It is changing, however, in this railway age, and round that antique inner circle of walls there is growing up a newer Chester that is commercial in its character, and that is contributed to by the position of the old town as a railway centre and by the visitors it attracts. Far away from the haunts of our early commerce, Chester has its history lost in remote ages, and whether its origin was with the great-grandson of Noah, whether with the early Britons or Roman colonists, certain it is that in the days of the Cæsars, forum and temple arose on its site as one of the legions there settled, and the tokens of the presence of the conquerors are many eighteen centuries after their days. And of these centuries Chester may say that "Saxon, and Norman, and Dane" it was; and that after the Conquest it, down to the days of the first Edward, was the scene of Welsh incursions and English revenge; and that in more modern times it has been the theatre of war, and from its walls monarchs have watched the fate of armies on whom their crowns depended. But from the time of the Civil War, Chester has kept on the even tenour of its way, and the growth of newer ports nearer the sea has lessened its trading importance. But since the era of railways the old city has received a strong impulse, and there has been very great development in recent years. That development may be best seen by a glance at some of the facts that tell its state in the past and in the present. About two score years ago, then, Chester had its nine churches, and half a dozen chapels; its infirmary was well off for funds; it had other charitable and philanthropic institutions. Its industries included lead, chemicals, and ship-building. Railways had not entered it, but its canal furnished cheap conveyance to Liverpool. Its population was some 21,300, and was slowly increasing. A dozen coaches passed through the town daily, and there were several "regular traders" by water; but trade languished for want of facilities, and Liverpool was beginning to tap the trade of the old town. Since then, Birkenhead has also arisen, and many of the old industries have passed away, and now there is little that is distinctive about the trade of the town. It has still its lead-works, and other of its manufactures, but the trade of its port has gone beyond recall. The city has gained, however, that which arises from its position, and from its being the centre of eight branches of railways at least, and in the trade that has grown thereout there has been more than a counter-balance, as the fact that its present population is 40,342 fully testifies. And there has been, as we have hinted, a corporate progress of the town that is fully entitled to notice, if brief.

Enter the city by that great general station (or even by that later and vast if less used structure that the Cheshire lines have had erected for them), and some idea of its importance is at once evident. Into that older station six lines converge; its roofs are said to cover over 123,000 square feet, its great platform is 1,000 ft. long, and it is computed that 3,000,000 passengers pass through it yearly. Near to it is the first and the largest of the series of stately hotels that Chester has,—one erected at a cost of 20,000*l*. The erection of that station may be said to have diverted in considerable degree the traffic of Chester, and to have made needful new bridges and buildings that have been supplied. Indeed, the extent of the renovations, restorals, and rebuildings in Chester may be said to have changed the town in the past four or five decades. Its ancient cathedral has been restored, additions have been made to old churches, and new ones have been built. Its post-office was enlarged a score of years ago; its old infirmary has had a new wing; the English Presbyterians have erected a new and stately church; the Wesleyans have been obliged so to alter and modernise that old chapels have been re-erected or altered, whilst to many, schools have been added. Barracks have been built for the militia, a drill-hall for the volunteers; whilst savings-banks, music-halls, banks, convents, have all contributed to the change that has been wrought in the appearance of the city in the decades we have named. Not the least of the changes is that of the town-hall which attests the public spirit of the citizens of Chester, and

lifts its central tower high above the noble halls and stately and ornate rooms. Nor is that great gift of the Marquis of Westminster, the Grosvenor Park, of twenty acres, with its trophies and statues, to be omitted as showing what has been added to the corporate provision by princely munificence for the recreation of the people of Chester.

A walk round those famous walls that for two miles enclose the earlier city, and that bring up to memory the builders of the distant ages: from them are seen the old town, with its newer additions, a mingled mass of towers, spires, and ancient dwellings alternating with those of more modern date. A glance at its curious "rows," where the first floor becomes the pavement, and there is a general sense on the part of the passer of doubt whether he is on the roof or in the cellar,—these curious old arcades are part of the picture of Chester that cannot be omitted. One of the writers too little read just now,—Albert Smith,—has described this curious feature of this old world city in one of his works in words that do not need to be now reproduced. But some of the quaintest of the old houses that are intersected by these rows have of late shown signs of decrepitude, and it is many years since that most famous one,—Providence House,—had to be rebuilt, though so well is the old mingled with the new that it needs the inscription, "Reconstructed 1862," on one of the beams to remind the passer of the change. These old gable-fronted houses are full of memories, and that known as Bishop Lloyd's House, with its square of carved Scriptural scenes, may be said to be one of the curiosities of Chester. And it is worthy of note that though the lapse of time and the work of decay's fingers renders repairs and reconstruction at times inevitable, it is generally done with some appreciation of the beauties of the old place and some attempts to revive its methods. Needless to say much more of the "rare old city." Of the glories of its "Roodee" we need not treat. Its citizens are public-spirited, as schools of design, infirmaries, and councils show; the efforts of the latter have made the death-rate a moderate one; and around the old and venerable town there are the signs of an extension that is not dependent upon any one industry, but is the result of the appreciation of the position and the attractions of the town. And it needs but a continuance of that public spirit, a provision for fuller wants of visitors and residents, to cause the rare old city to still more bask in the prosperity of the present whilst remembering that of the past with respect.

SALE OF A BUILDING ESTATE AT CHINGFORD.

MESSRS. FOX & BOUSFIELD lately submitted for sale at the Auction Mart, Tokenhouse-yard, a freehold estate, of 78 acres in extent, situated in Chingford. The property was described as being on the verge of Epping Forest, and about one mile from the Chingford Station on the Great Eastern railway. It was stated that there was an old-fashioned and commodious family residence on the estate, standing on an elevation immediately opposite the ruins of the old parish church, and commanding a fine view over picturesque scenery; and also four cottages. The entire property was said to be let on lease for a term of seven years from September, 1878, at a rental of 300*l.* a year, one of the conditions of the lease being that any portion of the land required for building was to be given up on six months' notice. The first offer made was 9,000*l.*, and the property was ultimately sold for 12,000*l.*, with the view of being laid out and resold for building upon.

Tramway Statistics.—A return has been published recently relating to street and road tramways down to June 30th this year, which shows the remarkable growth of tramways in public favour since 1876, when they were first generally introduced into this country. The capital authorised to be raised by shares in 1876 was 3,141,000*l.*; it is now 7,602,509*l.*, and of this amount 5,096,[illegible]*l.* have been paid up, and this, added to the sum raised by loans and debentures, makes the total amount expended 6,939,838*l.* There are 488 miles open for public traffic. The stock of the companies comprises 15,220 horses, 40 locomotive engines, and 2,045 cars. There have been 205,623,510 passengers carried down to June 30th this year; the gross receipts were 1,576,301*l.*; and the net receipts, after paying working expenses, 836,405*l.*

PROGRESS IN PRESTON.

AMONGST the Lancashire towns, whose material advancement within the last few years is indicated by the public buildings which have been erected and are in progress, Preston claims notice, more especially so at the present moment when preparations, architectural and otherwise, are already being made for the exceptionally historic festival, held every twenty years, which is intended to be celebrated in 1882.

In anticipation of the coming celebration several undertakings of a constructive character are now being carried out. The Corn Exchange, which was erected in 1824, and which, with the several spacious rooms in connexion with it, has for many years past been utilised for public meetings and entertainments, is at present entirely in course of reconstruction, and being converted into a large public hall. The external walls only remain, the building internally being completely transformed and greatly increased in height, whilst westward it is being considerably extended by the erection of an entirely new block, containing a range of several apartments in connexion with the general public purposes to which it is in future to be applied. The building, when completed, will be 230 ft. in length by 95 ft. in width, covering a ground area of nearly 22,000 superficial feet. The principal entrance to the interior of the building will be on the east side, leading into a circular vestibule 17 ft. in diameter. Through the vestibule a spacious entrance-hall, 34 ft. by 28 ft., is reached, having on each side several retiring-rooms and lavatories. From this entrance-hall the large hall on the ground-floor is approached. It is 147 ft. in length by 63 ft. in width, having a promenade on the north and south sides 16 ft. in width each, which can be either added to or partitioned off the main body of the hall at any time, by means of revolving shutters. The full width of the hall and promenades will thus be 95 ft. When used for meetings, concerts, or other similar purposes, it is estimated to seat an audience of 1,500 persons, for whom seven exits will be provided. At the west end of the hall there will be an orchestra, 44 ft. in width by 36 ft. in depth, designed with special regard to orchestral performances, and having accommodation for 300 performers. At the rear of the orchestra there will be a spacious organ-chamber, for which a powerful organ is now being erected by Mr. Wilkinson, of Kendal, at a cost of 3,000*l.* The instrument is the gift of a Preston merchant. The front of the organ-chamber will be an important feature in the work, having ornamental pilasters, with elaborate capitals and spandrels, with enriched plasterwork, modelled from special designs of the architect. In the new portion of the building, at the west end behind the orchestra, there will be ladies' and gentlemen's retiring and waiting rooms on the ground and first floors, with kitchens, heating apparatus, and storage rooms in the basement. The entrance for the band and principals, on musical occasions, will be from the waiting-rooms on the ground-floor, whilst the entrances for the chorus will be on each side of the organ-chamber, from the waiting-room on the first floor. Above the promenades galleries will be carried along the north and south sides, and also at the east end opposite the orchestra, the last-named gallery being circular on plan. Behind this gallery there will be a balcony or promenade, 8 ft. in width. The galleries and balcony are estimated to hold an audience of 1,500 persons, and will have four separate entrances and exits. The fronts to the galleries will have a handsome brass railing, with wrought-iron scroll-work between iron columns 14 ft. apart, with ornamental enriched capitals which spring from circular arches. Above these runs an enriched plaster frieze and cornice, surmounted by a cove to the underside of the ceiling, the latter being perforated by a series of circular lights. The hall will be heated by hot water, and lighted by three sun-burners in the ceiling, each having a large extracting-shaft for carrying off the vitiated air. The first floor over the principal entrance at the east end contains a spacious assembly-room, 102 ft. in length, and 45 ft. in width. The architect is Mr. Sykes (of the firm of Messrs. Garlick, Park, & Sykes), of Preston, and the contractor Mr. R. Saul, also of Preston. The estimated cost of the building, exclusive of the organ and fittings, is 10,000*l.*

The Free Library, Museum, and Art Gallery new buildings, to be erected at a cost of 60,000*l.*, part of the fund bequeathed to the trustees for that purpose by the late Mr. Edmund Harris, a well-known townsman, are about to be proceeded with, and it is confidently expected that the Prince of Wales will lay the foundation-stone of the building during the guild week next year. Active preparations are now being made for commencing the undertaking. The corporation have agreed to provide a site for the building, at an estimated cost of 30,000*l.*, and an Act of Parliament having been obtained for the purpose, the site will shortly be cleared. The structure will occupy a ground area of about 26,000 superficial feet, and will have four distinct frontages, being completely isolated from the neighbouring buildings. The principal frontage,—130 ft. in length,—will be on the east side of the Market Place, being the west front, and forming a fit architectural companion to the north elevation of the late Sir Gilbert Scott's noble Gothic production, the Town Hall, completed and opened a few years ago. There will likewise be a frontage on the east side, of similar length, facing Lancaster-road, a fine thoroughfare of upwards of 50 ft. in width, which has been opened out within the last few years. The north and south frontages will each be 160 ft. in length, facing two proposed new streets, of 50 ft. in width, which are about to be constructed by the corporation, under a comprehensive street improvement undertaking, intended to be carried out in connexion with the erection of the Free Library buildings. The designs for the buildings have not yet been prepared, and we are therefore not in a position to state what style of architecture will be adopted, but in anticipation of the foundation-stone being laid in September next, by the Prince of Wales, as above stated, we understand that the plans will very shortly be in the hands of the Harris trustees, at whose expense the building is to be erected. It is said that there is a strong probability of the designs being entrusted to Mr. James Hibbert, a local architect, who has taken a deep interest in the undertaking, and who has already erected many of the public buildings in the town. This probability receives force from an article on the subject which recently appeared in the leading columns of the *Preston Guardian*, and from which we make the following extract:—

"We are getting an admirable new Mayor, but we are also parting with a not less able and worthy retiring Mayor. In Alderman Hibbert we have a member of the Council who brings to all he has to do untiring zeal, inflexible straightforwardness, and the highest intelligence. The office of Mayor has lost nothing of its honourable tradition while in his keeping. He has served the Corporation well in every department of its business, but his exertions in connexion with the Free Library deserve especial commendation. His 'Notes on Free Public Libraries and Museums,' privately circulated in pamphlet form, have been sought after by many promoters of such institutions, and are proof of his great industry and ability. In order to procure the materials, and to make himself fully familiar with all the systems of working public libraries, he visited most, if not all, the principal libraries in the kingdom; and we believe he has mastered the conditions requisite for the planning and structural form of a perfect building for library and museum purposes more thoroughly than any other man within reach. During his year of office he has seized every opportunity to further the interests of the Preston Free Public Library. We trust that his restoration to health, and freedom from the cares of office, will permit him to devote himself in the succeeding years to the superintendence of the erection of a building which shall be at once a stately and splendid memorial of the Harris family, and one so skilfully adapted for its intended uses that the utmost degree of benefit from the liberality of Mr. Harris may be reaped by many future generations of citizens of the ancient borough of Preston."

The structure will include lending and reference libraries, a reading and news-room, together with a museum and art galleries. It is intended that when the building is completed and opened, the cost of its care and maintenance shall be defrayed by the corporation.

On a site on the north side of Fishergate (the principal thoroughfare in the town), covering an area of 32,000 superficial feet, which has been acquired at a cost of a little more than 5,000*l.*, a very extensive block of buildings has for some time past been in course of erection, which are intended for the constabulary and all other business purposes belonging to the county, Preston being the centre where all executive business connected with the Palatinate is transacted. The buildings, which have a frontage to Fishergate, nearly opposite the railway-station, of 160 ft. in length, with a return frontage on the east side, in Pitt-street, of 200 ft., are 54 ft. in height, and contain three floors, besides the basement. They are faced with red brick and Monera stone, from the Welsh quarries near Wrexham. The principal elevation is that in Fishergate. The several floors contain ranges of three-light mullion windows, and the frontage

is surmounted by nine ornamental gables, enriched by a free introduction of sculpture which includes the arms of the county palatine on shields, the "red rose of Lancashire," and the Prince of Wales's feathers. There are three projecting entrances, massive cantilevers supporting elaborately-carved canopies. The Pitt-street frontage is, in its main features, uniform with the Fishergate elevation, with an entrance, principally for the magistrates, at the north end. The eastern portion of the buildings contains the offices belonging to the clerk of the peace's department, the treasurer, and the auditor, together with a spacious apartment for the meetings of the magistrates of the county, another large apartment for the storage of the county records, the magisirates' dining-room, and other apartments; whilst the western portion of the block is set apart for the business connected with the county constabulary. This last-named part of the buildings is already completed and occupied, and the other portion is expected to be finished about June next, the interior works being now in progress. Within the building there is an open area from the basement to the top, faced with white enamelled bricks. The basement contains kitchens, stores, and several apartments for the sergeants and other members of the constabulary force. On the ground-floor a corridor, 6 ft. in width, and extending the entire depth of the building, from the Fishergate frontage, gives access to the various offices. The floor of the corridor is laid with polished concrete marble, manufactured in Germany, and the walls are faced with a dado in white and grey enamelled tiles. The offices of the clerk of the peace, the deputy clerk of the peace, and the several clerks' offices, are on this floor, as also the record-room, the magistrates' dining-room, and stationery-room. A spacious stone staircase, approached from the Pitt-street entrance, leads to the court-room on the first-floor, in which the annual meeting and other meetings of the magistrates of the county will be held. The size of this room is 63 ft. by 45 ft., and its height from the floor to the apex of an ornamental lantern-light 45 ft. The lantern-light is glazed with embossed coloured glass. Its dimensions are 44 ft. by 16 ft. The offices of the county auditor, the treasurer, the bridgemaster, and those of their subordinates, are also on this floor, along which there are corridors, uniform with those on the ground-floor, and similarly paved with polished concrete. An octagonal staircase, in Hopton Wood stone, from the Derbyshire quarries, having Dalbeattie polished granite columns at the foot, leads to the several offices in the upper parts of the building. The second floor contains what are designated spare rooms. All the record-rooms, which will contain documents of great value, are fireproof. Mr. Littler, of Manchester, is the architect, and Mr. John Walmsley, of Preston, the contractor. Mr. W. Fox is clerk of the works. The sculpture work is by Mr. Miles, who executed similar work at the Town Hall. The estimated cost of the entire building is 50,000*l*.

The new station, the joint property of the London and North-Western and Lancashire and Yorkshire Railway Companies, which is said to be the longest roadside station in England, although recently opened for traffic, is still incomplete, and at present is being further extended in width in a westerly direction. Some conception of the enormous dimensions of this station may be formed when it is stated that its entire length, from the approach in Fishergate, to the southern extremity of the platforms, is 1,800 ft., or one-third of a mile. The two central or island platforms, as they are called, are themselves 1,360 ft. long, or upwards of a quarter of a mile in length each, and 50 ft. in width. Between these two platforms there are three blocks of buildings 40 ft. in width, and carried to a length of upwards of 600 ft. The north block contains four spacious waiting-rooms, 40 ft. by 30 ft. each, and unusually lofty, together with the station-master's office. The central block contains the first and second class refreshment-rooms, 100 ft. in length; and also the grand dining-saloon, 70 ft. long, and capable of seating 300 persons. The express trains between London and Edinburgh and Glasgow, stop twenty minutes at Preston for dinner. Both the refreshment-rooms and dining-saloon are luxuriously fitted and furnished, and the floors are laid with ornamental encaustic tiles. The south block contains another general waiting-room, of the same dimensions as those already named; together with what are designated re-booking offices, or auxiliary booking-offices, in addition to the principal booking-offices at the entrance to the station. Also telegraph-offices, transfer, parcel, and other spacious offices which are occupied by Messrs. W. S. Smith & Sons. In addition to these, there are also the buildings, with booking-offices, waiting-rooms, and platforms on the east side of the station, which are specially set apart for the traffic of the Lancashire and Yorkshire Company. The station, when completed on the west side, will be about 400 ft. in width. There are at present twelve lines of rails, and the station is covered in to the entire length of the platforms with a light iron girder-roof in three bays. A short distance to the south of the station, on a high level, very considerably above the railway, the company are erecting a large hotel, an illustration of which has already appeared in the *Builder*. The building, which is in red brick, is almost externally completed, with the exception of a prominent tower, now in progress. The site of the hotel is on the summit of a beautifully laid out park, which slopes down to the margin of the river Ribble, and from which there is a commanding and extensive view of the valley beneath, and of the surrounding country for many miles in the distance. On the east side is the lofty eminence called Hoghton Tower, which has an interesting place in history as having been visited by James I.; the Rivington Hills; and other places inland, extending to the borders of Yorkshire; whilst on the west side the winding course of the Ribble is discernible down to its mouth, between Lytham and Southport. The hotel is intended to be approached from the railway platforms by an ornamental bridge thrown over the line leading to garden grounds, which are about to be formed on land between the railway and the hotel, at present covered by warehouses and sheds.

The West Lancashire Railway, a new line between Preston and Southport, is at present in course of construction. A section of the line, about eight miles in extent, from Southport to Hesketh Bank, in the direction of Preston, has already been completed and opened, and the works on the remaining portion to the Preston terminus have for some time past been in progress. The heaviest portion of the work is that part of the line which is carried over the valley of the Ribble by an embankment, and thence across the Ribble itself by an iron girder bridge of five spans, and in continuation to the intended station at Preston, on a stone viaduct of twelve arches. The bridge is 320 ft. in length, the central span being 64 ft., and the other spans about 51 ft. each. The girders will rest on stone piers, for the construction of which coffer-dams have been made, but the contractors have met with considerable difficulties in consequence of the coffer-dams having been swept away on three occasions by storms and floods. Owing to a project on the part of the Ribble Navigation Company for lowering the bed of the river, the contractors have been compelled to excavate from shore to shore, to a depth of 10 ft. down to the solid rock, and this has increased their difficulties. One of the piers is already in position, and coffer-dams for the others are being constructed. Several of the arches of the viaduct on the Preston side of the river are already completed, and it is expected that the line will be finished and ready for opening during next summer. The engineers of the line are Messrs. Brunlees & Fox, and Messrs. Braddock & Matthews, of Southport, are the contractors.

Several buildings of a public character have been erected in the town within the last few years, notably in Fishergate, where the street architecture of that locality has undergone great improvements. Amongst other structures may be enumerated the Lancaster Banking Company's premises, the Preston Banking Company's buildings, the new Post Office, the Preston Gas Company's Offices, a fine Gothic structure, both externally and internally; the Reform Club, the Conservative Club, and the refacing of the theatre. The Manchester and County Banking Company are also about to erect new bank premises in Church-street, opposite the Town-hall.

It may be added that the town is rapidly expanding in several directions, more especially northwards and north-westward, on the banks of the Ribble, where building is actively going forward. The population of the town, which in 1871 was 84,000, has within the last decade increased to 94,000.

IMPORTANT DOCK IMPROVEMENTS AT LIVERPOOL.

For some time past the shifting course of the sand deposits in the bed of the river opposite the docks at the south end of Liverpool has materially interfered with the shipping in that locality, the south docks having, during the last few years, been comparatively deserted, to the great loss of the inhabitants of Toxteth Park, and the district immediately around, in which they are situated. This has led to the Dock Board resolving upon carrying out improvements of an important character in several of these docks. At the meeting of the Board last week, Mr. Lyster, the dock engineer, presented a report on the subject, in which he stated that the question of deep sills for facilitating the working of the dock system was of such vital importance to the trade of the port that he had lately thought it well to give consideration to the possibility of providing an extra depth over the sills leading from the river into the Herculaneum half-tide dock, as well as a corresponding extra depth, not only in that dock itself, but also throughout the new system now in course of construction at the north end of the estate. He suggested the desirability of lowering the Herculaneum sills and dock to the levels of 10 ft. and 13 ft. respectively below the old dock sill datum, and, in addition, he suggested that he should be authorised to construct the sills of the main passages of the new docks, as well as the body of the docks themselves, to the level of 10 ft. and 12 ft. respectively. These suggestions met with the warm approval and sanction of the Board, Mr. Harrison, in moving their adoption, observing that this deepening of the sills and docks would enable vessels with large cargoes to enter the docks, and it would be a great advantage to the south end of the port. He observed that ultimately it would no doubt be connected with the Brunswick Dock, but whether that had to be deepened would be for the Board to say a few years hence. It was, however, he remarked, impossible to overestimate the advantages that would arise to the south-end trade. Mr. Brocklebank, one of the oldest and largest shipowners in the port, and who was for several years chairman of the Dock Board, said it was one of the greatest improvements that had been proposed for a great length of time. The advance of shipping was so rapid that it was scarcely possible to look ahead sufficiently far in order to accommodate every description of vessel. The estimated cost of the works thus sanctioned is 16,000*l*.

THE CASTLES OF SKENFRITH AND WHITE CASTLE, OTHERWISE LLANTILIO.

SKENFRITH CASTLE.

Among the numerous strong places in Monmouthshire, which, from their character and position, seem to have been thrown up during the occupation of that border territory by the Mercians and the English during the eighth and following centuries, Skenfrith holds a conspicuous place. Its fortune, moreover, was to be adopted, like Caerleon and Grosmount, by the Norman invaders, who placed a keep upon its ancient mound, and girdled its elevated platform with walls and towers of considerable strength, so that it became of even greater importance in the twelfth and thirteenth than in the preceding centuries. It stands in the deep valley, and upon the bank of the Munnow, five miles below the castle of Grosmount, and six above that of Monmouth on the same river, besides which it forms the south-eastern point of the celebrated Monmouthshire trilateral, Grosmount and Whitecastle being the two others, so celebrated in Border warfare, and especially in the contest between Henry III. and the Mareschals, earls of Pembroke. Churchyard writes of them as,—

> "Three castles fayre, are in a goodly ground,
> Grosmont is one, on hill it builded was;
> Skenfrith the next, in valley it is found,
> The soyle about for pleasure there doth pepe.
> Whit Castle is the third, of worthie fame,
> The country round doth bear Whit-Castle's name;
> A stately seate, a lofty princely place,
> Whose beauty gives the simple soyle some grace."

Unlike the elevated and rock-founded castles of Chepstow and Ludlow, the strength of Skenfrith was in the low and marshy character of its position. The Munnow flows within a few feet of its walls, and overflowed into its ample ditches, and a few yards below the castle is the bridge mentioned by Leland. Skenfrith marks the uniting point of

several valleys, and even now, with the advantage of modern roads, is by no means easy of approach. Probably, in some measure on this account, it has suffered but little from additions or alterations, and as little from violence. Time, the greatest but least violent of revolutionists, has been the principal agent in the changes that have taken place, and the great obstacle to the study of the castle by the antiquary is the rich and redundant mantle of friendly ivy by which it is draped.

Skenfrith belongs to that family of castles of which Coningsborough and Launceston are the English types, and of which Brunlais, and, in some degree, Tretower, are local examples. Its keep is a cylindrical tower, with a widening or battering base, to which the elder antiquaries gave the name of a Juliet. This stands within an inclosure formed of curtains and bastion towers, in this instance forming a trapezium in plan, of which the northern and southern sides are 74 yards and 71 yards, and the eastern and western 31 yards and 59 yards. The diameters of the area, measured across the keep, are,—northern and southern, 48 yards, and eastern and western, 57 yards.

The keep stands unconnected with the curtains, and nearly on the central line of the area, about ten yards from its eastern end. It crowns a low mound, about 6 ft. high, and 50 ft. broad at the top, evidently artificial. If the mound ever had a proper moat, it has been long filled up. The tower is about 40 ft. high, and may have been 5 ft. or 6 ft. more. It is a cylinder of 36 ft. in diameter, with walls 7 ft. thick. 10 ft. above the ground is a bold half-round string or cordon, below which the wall batters, and at the base is 10 ft. thick, augmenting its diameter there to about 42 ft. The present entrance is to the west, by a doorway of 5 ft. 6 in. opening, having an interior door opening inwards, and probably having had an exterior door also, but the doorway is now a mere breach in the wall, with but a fragment of the rebate of its inner door. The masonry, and the absence of bar-holes, show this doorway not to be original. Probably it was opened in the Decorated period, when passive strength was less an object, and a first-floor entrance was found to be inconvenient. Such later openings are common in keeps with closed basements. There is one at Pembroke.

The basement chamber is circular, 22 ft. 4 in. diameter, and its floor is at the ground level. In it are two loops, with flat tops, in recesses splayed to an opening of 3 ft., of which the cills are 3 ft. from the ground. The wall is quite plain, and there is no trace of a well. This chamber was 11 ft. high; no doubt, a store-room, and must have been entered from the chamber above by a ladder.

The first floor, of the same diameter, was 14 ft. high. This was the principal chamber. The floor was of planks resting upon four large beams laid across, the outer beams receiving the ends of some shorter timbers laid at right angles to them. The doorway points about west, and is partly over that of the basement. It was 5 ft. broad, and its passage-vault was round-headed, but the ashlar dressings are gone. There is no trace of a portcullis. In the substance of the wall is a square hole, probably once containing an oaken tie, such as was used at Brunlais and at Rochester. This doorway was evidently the original and only entrance to the keep. To the right of the entrance a second door opened into a mural stair, a fragment of the cylindrical shell of which remains. This led to the second floor and battlements. For its support the external wall is thickened by a half-round buttress, solid below, and ascending to the summit. The door and the staircase are utterly ruined. In this floor are two window openings in flat-sided recesses, apparently round-headed. The windows, probably large loops, are broken away, and the ashlar face of the recesses is gone, but the relieving arch in the wall is flat pointed. Near the north recess is a corbel of Decorated aspect, 6 ft. from the floor.

The second story, entered by the winding mural stair, is much obscured by ivy. Its floor was of stout plank, resting upon a large single cross-beam, of which one support, a broad plain corbel, remains; the planks fitted into a rude groove or chase, not a set-off, in the wall, which is, therefore, not diminished in thickness. The curve of this story is a little impaired by a projection connected with the stair; and there is a sort of recess, which may have been the kitchen fireplace, the cooking being usually, in these towers, carried on in an upper floor, as at Castell Coch and Morlais. There were three windows in this floor, but of them little is to be seen, nor of what may remain of the ivy-covered battlements. The main floor was plastered, though thinly. It is evident that the floors were always of timber. The main strength of a tower of this character was passive, the loops and windows counting for nothing in the defence, but no doubt the battlements had a rampart walk, and the roof, therefore, was either flat, or if conical, sprang, as at Coucy, Coningsburgh, Pembroke, and Marten's Tower at Chepstow, from an inner wall. Nothing can be more senseless than, as some modern architects have done, to cover these towers with a conical roof springing from the outer wall, which thus could not be defended in the only way possible with such structures, from above.

The curtain wall of the single ward within which this Juliet keep is placed is 8 ft. thick, and from 30 ft. to 40 ft. high, the contained area being at a level 6 ft. to 10 ft. above that outside, and no doubt raised artificially. The four angle towers were cylindrical, 11 ft. internal diameter, and with walls 8 ft. thick. They have no internal projection, but the angle at each is crossed by a gorge wall, 7 ft. long. Both towers and curtain have an exterior base about 12 ft. high, battering below to a thickness of 10 ft., but without a cordon. Each tower is entered from the gorge by a door of 3 ft. opening, and its basement is elevated about 4 ft. or 5 ft. above the inner court. Each has three loops in recesses 4 ft. 5 in. deep, and 5 ft. 8 in. broad. There are no staircases, though there seem to have been two upper stories, the highest rising above the curtain. The floors were of timber. The arches vary; some are round-headed, others lancet, others drop-pointed. The loops are square-headed. The south west tower has been taken down, and the present entrance to the place is through the gap.

In the south front, 60 ft. from the west end, is a half-round buttress tower, with no internal projection. The breaches in its interior and exterior faces show it to be solid. Opposite to this tower, in the north wall of the court, is a doorway of about 6 ft. opening, the pointed arch of which is seen just at the level of the court. As the sill of this doorway must be at about the level of the Munnow, it was probably connected with a short canal for the admission of a boat, like what is seen at Tonbridge and Leeds Castles, and at Caerphilly. In this same wall, but close to the north-east tower, is a small flat-sided recess, either a door or a window, and 6 ft. above the court level. If a door, it must have been for the lifting of stores from a boat upon the mill-leat which flows below it.

There is no trace of a regular gatehouse to this court, but a part of the centre of the west wall has been rebuilt with carelessness, and probably represents the entrance. This entrance was likely to have been by a mere doorway in the curtain without a regular gatehouse, like the lesser gateway at White Castle. From this point a slightly-elevated causeway, crossing the court, leads direct to the central tower.

The walls are tolerably perfect, but the battlements have been removed, and the upper stages of the towers are in ruin. It is remarkable that the mural towers are without staircases, and there are no visible mural chambers or garderobes, or, with one doubtful exception, fireplaces, in the castle. The material is the old red sandstone of the district, as was the ashlar. The workmanship is ordinary but pretty good rubble, and the mortar coarsely mixed and freely used. The mill leat, and the Munnow immediately beyond it, form the defences on the north front. Along the other three fronts was a broad and deep ditch fed from the river, and now filled up. As the ground with the walls is 6 ft. to 10 ft. higher than that immediately outside, they are to that extent revetments. It is pretty clear from the appearance that the original fortress was a raised platform, in its centre a mound, and around it a wet ditch, the whole, no doubt, strongly palisaded.

There is nothing of a Norman character in either the plan or details of the structure. The singular form of the area may be but an accommodation in right lines to an irregular earthwork. Had it been Roman, the platform would scarcely have been raised. The keep tower is clearly Early English of the time of King John, or early in that of Henry III. The surrounding walls and towers are of the same date.

The history of Skenfrith is obscure, but it is evident that it was built simply to contain a small garrison, and not at all as a private residence. The area contains no trace of hall, chapel, or kitchen. No lines of foundation are visible, and whatever lodgings were erected were probably of timber, with roofs resting against the wall.

Skenfrith is said, at the entrance of the Normans into the district, to have been held by Bach, a son of Cadivor ap Gwaethvoed, which Gwaethvoed is the reputed ancestor of several families in Monmouthshire and East Glamorgan, and who, or his father, was likely enough to have obtained possession of it during the victorious campaign of Caradoc-ap-Griffith in 1065. The pipe-roll of the first year of John shows the castles of Skenfrith, Llanteilo or White Castle, Kinton, and Ledbury, to have belonged to the king; and in 1205 (5 John) he granted Skenfrith, Llanteilo, and Grosmount to Wm. de Breos, to hold them as they had been held by Hubert de Burgh, and Geoffrey, Earl of Essex, was allowed 20 marks which he had paid to De Burgh for fortifying them. This probably was the date of the present masonry. John de Monmouth, a powerful local baron, had some claim upon these castles, which was admitted by the king; but nevertheless, in 1219, De Burgh was ordered to have seizin of the three castles forfeited by the defection of William de Breos. William's heir was Reginald de Breos, who was in ill-health; he demurred to the decision of the king's court. In 1220 they were held by De Burgh. In 1223 the king had occasion to send a messenger to Skenfrith, and in 1224 the Sheriff of Hereford was directed to send thither to De Burgh 2,000 quarrels (heads of cross-bow bolts), and all through the troubled reign of Henry III. these castles continued to be of great military importance. At the settlement of Wales by his son they probably were allowed to fall to ruin. With most of the surrounding property Skenfrith finally fell to the Duchy of Lancaster. As early as the time of James I. it was presented by the local jury as "ruinous and decayed, time out of the memory of man."

The parish church, containing some fragments of early English or early Decorated date, stands a few yards west of the castle. It contains an altar tomb, bearing the effigies in a sort of trick of John Morgan, who died 2nd September, 1557, and Ann, his wife, who died 4th January, 1564. On the side of the tomb are figures in relief. The armorial bearings are,—quarterly, 1 and 4, Barry of 9, on six escutcheons, 3, 2, 1, as many lioncels rampant, 2 and 3, three towers, in the nombril point a roundel. Evidently these are the arms of Cecil, and point to the connexion claimed by that family with Wales. Another shield bears on a chevron three sprigs, between three spear-heads; crest, an arm embowed grasping a ———. John Morgan is said to have been of Wayne, in this parish.

WHITE CASTLE.

White Castle, called also from the parish in which it stands, Llanteilo Cresseny, and in the records "Album Castrum," stands upon very high ground about five miles east of Abergavenny, and commands an extensive and completely panoramic view over a country eminently characteristic of the old red sandstone. Within the wide circumference are mountains and hills green to their summits, deep valleys, oaks and elms of great size and in great profusion, and pastures of unusual richness. It is not to be marvelled at that the Welsh, having lost so glorious a possession, should strive to recover it, or that the English and the Normans, having won, should spare no labour or expense in the construction of strong places to enable them to retain it.

Unlike Grosmount, Skenfrith, Goodrich, and Chepstow, and the other castles upon the Munnow and the Wye, and the seaboard of the Channel, White Castle is far removed from any watercourse or defensible river, and is only to be reached by a long and steep ascent. It is five miles and a half from Skenfrith, and five from Grosmount, Grosmount and Skenfrith being four miles and a half apart, and forms the western and most exposed point of the celebrated trilateral. Its decay is due rather to time than to violence, for its walls and towers are all standing, and what is wanting are those parts which would naturally give way to rain and frost, or from time to time be removed for the rebuilding of houses and cottages in the neighbourhood.

White Castle is also as peculiar in its arrangements as in its position. It has no keep, and so far it resembles the Edwardian castle; but, unlike those structures,—of which Caerphilly in South, and Beaumaris in North Wales, are

typical examples,—its main defences are confined to a single line, covered, however, at the principal entrance by a walled earthwork or barbican, and at the lesser entrance by a second and rather smaller earthwork, without, or with but little, masonry. Its ditches also are on a formidable scale, both for depth, breadth, and extent, and altogether, both in position and details, it is not inferior in strength to any castle in the March, and is besides in the first class as regards capacity.

It is composed of a central ward, in general figure hexagonal, but oblong and somewhat pear-shaped, its internal diameter, north and south, being 50 yards, and its greatest cross diameter, east and west, 37 yards. The northern end measures, also internally, 15 yards, the southern 18 yards. The sides next to the north end are, in length, 27 yards, those next the south end 23 yards and 26 yards. The wall is 10 ft. thick at the base, and slopes externally to 7 ft. at a height of 15 ft. In height it is about 30 ft. to the rampart walk or allure. The towers at the two southern angles are 18 ft. internal diameter, with walls 7 ft. thick. The two middle towers are 12 ft., the other two at the northern angles form the great gatehouse, and are 13 ft. They are about 45 ft. high. The four southern towers have a basement floor a little below the court-level, with one loop; a first floor with three loops, and a second floor, whence was a way to the ramparts of the curtain. There seems, also, to have been an upper or third story. The floors were all of timber, and there are no staircases or mural chambers. The gorge valley of the two southern towers are broken away, that of the western partially so; that of the eastern is perfect, and contains the entrance-doorway of 3 ft. opening. The gatehouse towers are also entered at the gorge from the court, but the gorge-wall is thicker, and contains a series of mural staircases ascending to the summit. These are not "turnpike," and are not continuous, but begin anew at each floor. The gateway, concealed, save from the front, by the unusually bold projection of the flanking towers, has a passage 10 ft. wide and 8 ft. deep. The barrel-vault remains, but the ashlar of the internal gate is gone, and its former existence is only shown by a barhole. Of the outer gateway two barholes remain, and a fragment of the portcullis groove, which is 4 in. square, and placed outside the gate, so that the grate was wholly visible even when raised, unless, indeed, concealed by a timber brattice. It was worked from a machicolation between the towers, now gone. The flanking towers are without loops, that to the left on entering is approached from the vault by a narrow doorway. If there was a drawbridge attached to this gate, its heel must have rested upon a large stone about 10 ft. in advance and 6 ft. below the level of the portal. The ditch at this point is nearly 100 ft. broad, and 30 ft. to 40 ft. deep. It is evident that there were no bridge piers of masonry in the ditch, so that the roadway probably rested on trestles.

The opposite and lesser gateway is in the south wall, close to its west end, and flanked, therefore on one side by the south-western tower. It seems to have been a mere opening in the curtain, about 10 ft. broad. It is now a mere breach, but the bar-holes remain. There is no sign of a portcullis. The approach to this gate came up along the edge of the ditch, between it and the wall, from the east, and was commanded by two loops in the curtain and by the south-eastern tower.

The area of the court is quite clear of buildings, but a few heaps of rubbish show that it contained barrack buildings of timber, with stone basements, placed against the walls, which have been plastered. There is no trace of hall, chapel, kitchen, well, or permanent lodgings, and no ornament of any kind; no moulding, no mural chambers or garderobes, no staircase save in the great gatehouse, and only two small fireplaces, in the first and second floors of the north-eastern gate tower. The towers are not only bold and lofty, and about 60 ft. high, but the outer half of these bases is carried many feet down the slope of the ditch, giving them great breadth of base, and a very substantial and massive character.

The great barbican is a very remarkable work, not unlike a similar defence at Castle Rising, which there, however, is confined to an earthwork, whereas here the defences are both in earthwork and masonry. The work is irregular in its shape, concave where it rests upon the counterscarp of the main ditch,—on its other faces convex. In depth, or from north to south, it measures about 56 yards; in breadth, 74 yards. It is defended by a ditch of moderate dimensions, which communicates with the main ditch at each end, but is scarce a quarter of its depth. The curtain wall is very irregular in outline, the west side being made up of about four straight pans of masonry, meeting at various angles. The front is a long straight wall, and the east side, also straight, meets it at a right angle. The curtain of this outwork is about 5 ft. thick, and from 15 ft. to 18 ft. high. Upon it are four mural towers; three, drum-shaped, are 10 ft. in internal diameter, with entrances at the ground-floor from the court. In height they rise a story above the curtain. They are looped to the field, have timber floors, and their staircases seem to have been of timber. One tower is angular, and has evidently been the kitchen, part of the oven and the outline of the large fireplace being still visible.

The outer gatehouse is placed at the south-eastern corner of the barbican, terminating its wall and resting upon the counterscarp of the main ditch. It is of rude construction, composed of two solid masses or cheeks of wall, 46 ft. long and 9 ft. thick, rounded at the outer end. Most of the northern wall is gone, and with it the roof or vault of the entrance-passage, and the details of the gateway. This sort of entrance between the high and long walls is found at Coningsborough and Berkhampstead. The other or inner end of the barbican-wall, at the south-west corner, ends abruptly, and probably descended a little way down the counterscarp of the main ditch, so as to prevent an entrance. In the wall is a recess 6 ft. 4 in. broad and 3 ft. deep, which may have been a public garderobe, similar to that in the wall of the middle ward of Corfe Castle.

The lesser barbican covers the south entrance, the way to which does not, however, appear to have lain across it. It is of earth only,—that is, has no walls, but is of great strength; in shape, and indeed in function, it is a lunette. Its diameter, in the direction from the gate outwards, is 20 yards, and its breadth 100 yards. It rests upon the counterscarp of the main ditch, here about 20 yards broad. It has, also, on its front and sides, a ditch of its own about 20 yards broad, and communicating with the main ditch. In parts this work seems to have been revetted. It was connected with the main work or body of the castle by a narrow bridge, which sprang from its eastern angle, and of which traces remain. There does not appear to have been any outer gatehouse at this end; probably the approach was by a boat across the ditch, or by a plank bridge upon trestles.

Besides the above described works there is another and much larger, though less strong, earthwork, which covers the whole east face of the castle, as well as the flanks of its barbicans. It is about 30 yards broad, and outside the main ditch, on which it rests, and upon the ditches of the barbicans. It had also, towards the field, a ditch of its own, now converted into a hollow road. The approach to either gate of the castle, from the east, lay across this outwork, which was probably stoutly palisaded, and intended to give a moderately-safe refuge to the peasantry and their cattle, during invasions from the Welsh.

It is evident from the general design, position, and capacity of this castle, that it was not intended, like Caerphilly, for the accommodation of a great military baron, nor like Morlais or Castell Coch for a mere military port. Its central part is nothing but a fortified area, like Framlingham, where, however, there seems to have been, as at St. Briavel's, a keep. Here certainly there was none. It is and always was a mere shell, composed of a strong and lofty curtain, mural towers, and a gatehouse. There do not appear to have been any of the usual buildings contained within a large castle. The accommodation within the walls seems to have consisted in timber sheds, resting on stone foundations, and built against the walls. In this way a very large number of soldiers might have been accommodated.

Moreover, the capacity for lodging a large body of troops was not confined to the inner ward. The outworks are also spacious and strong, and could contain a small army, or the *élite*, or perhaps the cavalry, of a large one, besides affording accommodation for a considerable herd and flock of cattle and sheep. Such a place would be secure against any ordinary inroad of the Welsh, and supported, as it would be, by the equally strong, though less capacious, castles of Grosmount and Skenfrith, not to mention Chepstow and Caerleon, which were not always in friendly hands, not only would the entrance of a Welsh army into Gwent be difficult, but its retreat, once within the line, would be almost impossible.

As to the age of White Castle, it is difficult to speak positively. The earthworks are not at all of an English, still less of a Welsh, character. Nor, as a general rule, did the Normans ever throw up earthworks on so immense a scale. The masonry is probably of the age of John, or, perhaps, even of that of Henry III., contemporary with Skenfrith, or perhaps a trifle later, and the earthworks may be of the same date. They are certainly designed to suit a castle in masonry, not the mere palisaded residence of a Mercian Thane. They do not at all resemble the earthworks connected with Offa's Dyke, or those known to be the work of Æthelflæda or Edward. On the whole, it seems more probable that, looking to the extreme importance of the position, the early Norman invaders exceeded the usual character of their earthworks, and designed and executed those which are still seen.

The name White Castle,—in Welsh, "Castell Gwyn,"—is said to be derived from Gwyn ap Gwaethvoed, a brother of the reputed founder of Skenfrith, and one of the Welsh lords of this district. If so he must have held it during the troubles preceding and subsequent to the death of Harold, but any works that he may have found or thrown up were probably effaced by those of the present castle. The castle was held, with those of Grosmont and Skenfrith, sometimes by the De Breose family, sometimes by the Crown, and finally by the Dukes of Lancaster. No doubt it shared in the general neglect of the Border castles; that is, of such as were not the seat of any baronial family. In the time of James I. it was a ruin, and had been so beyond the memory of man.

G. T. C.

ROYAL BERKSHIRE HOSPITAL.

The extensions of the Royal Berkshire Hospital having in past years been confined chiefly to the wards, a deficiency in accommodation for nurses and servants became manifest, and the governors in the early part of the present year determined upon the erection of a laundry, servants' wing, new chapel, operating-rooms, &c., and by adding a story to the present nurses' home and outpatients' hall, providing additional accommodation for the nurses, and a museum, library, and students' rooms, for the medical staff.

Our illustrations show the nurses' home and servants' wing, which form a detached building on the east side of the hospital property, and these with the laundry (of which we give an interior view) are connected by a colonnade with the main building.

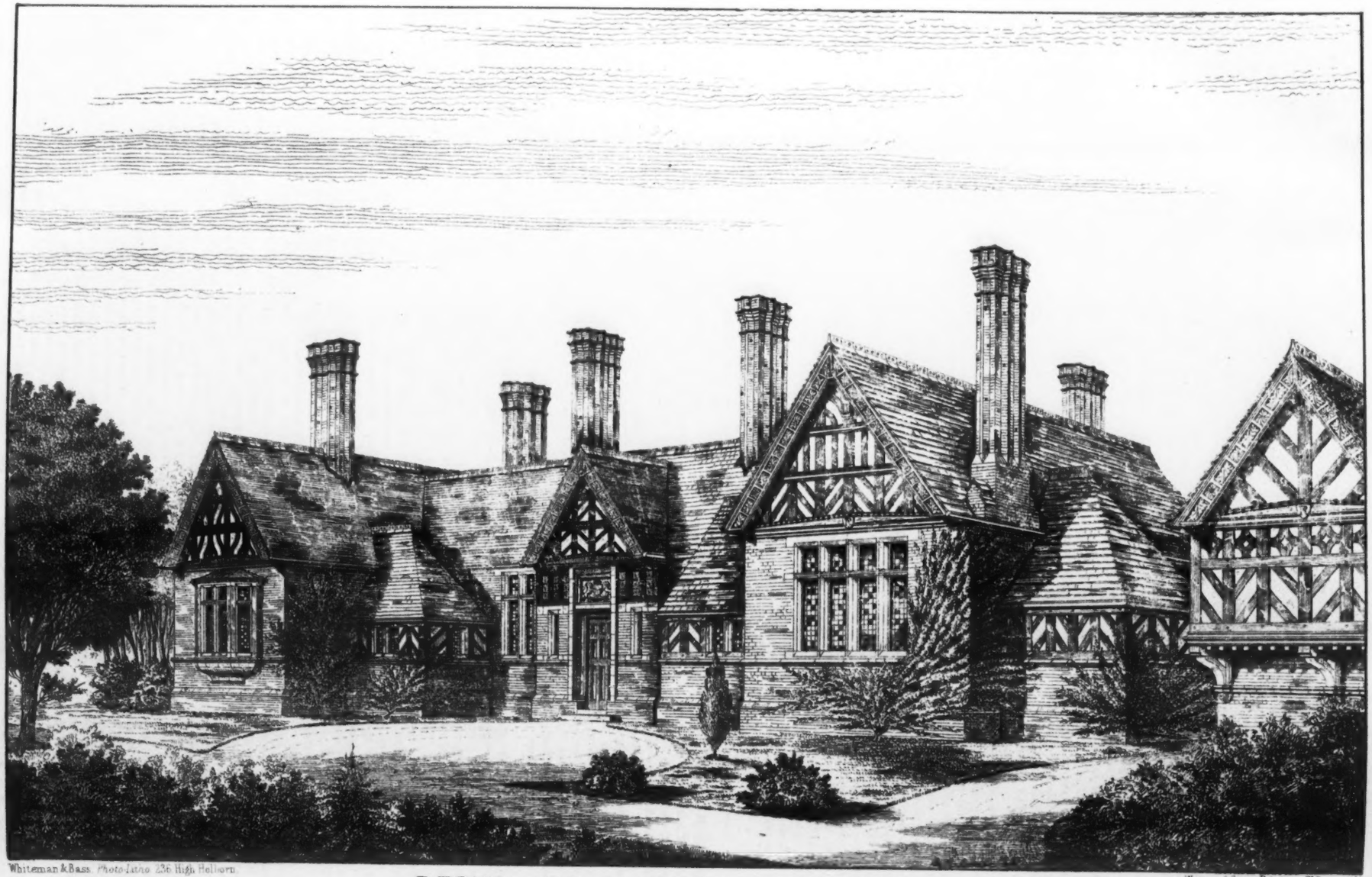
The new chapel (the interior of which we will illustrate on another occasion) is placed in the centre of the main hospital block, and by covered approaches access is obtained from all parts of the building.

The laundry is being fitted with machinery supplied by Messrs. Thomas & Taylor, of Stockport, worked by steam-power.

The interior of the chapel, museum, library, and students' rooms, will be handsomely fitted in walnut and pitch-pine French-polished, and in all the buildings sanitary and other appliances of approved kind are being introduced.

The work connected with the laundry, servants' wing, nurses' home, colonnade, library, and museum, is being executed by Messrs. Parnell & Sons, of Rugby; that of the chapel and operating-theatre by Mr. A. Sheppard, of Reading; the finishing of the library and museum by Mr. A. Kimberley, of Banbury; the engineer's work by Messrs. Thomas & Taylor, of Stockport; and the whole is being executed from the designs and under the supervision of Messrs. Morris & Stallwood, architects, of Reading, at a total cost of about 15,000*l*.

Architect and Builder.—In Station-road, Snodland, a new church, to be called the New Jerusalem Church, is to be built from plans prepared by Mr. H. Bridge, builder, of Maidstone, who is also the contractor for building the church. The style is Gothic, shape cruciform, with a tower. The church is to be of Kentish rag, with Bath stone dressings.



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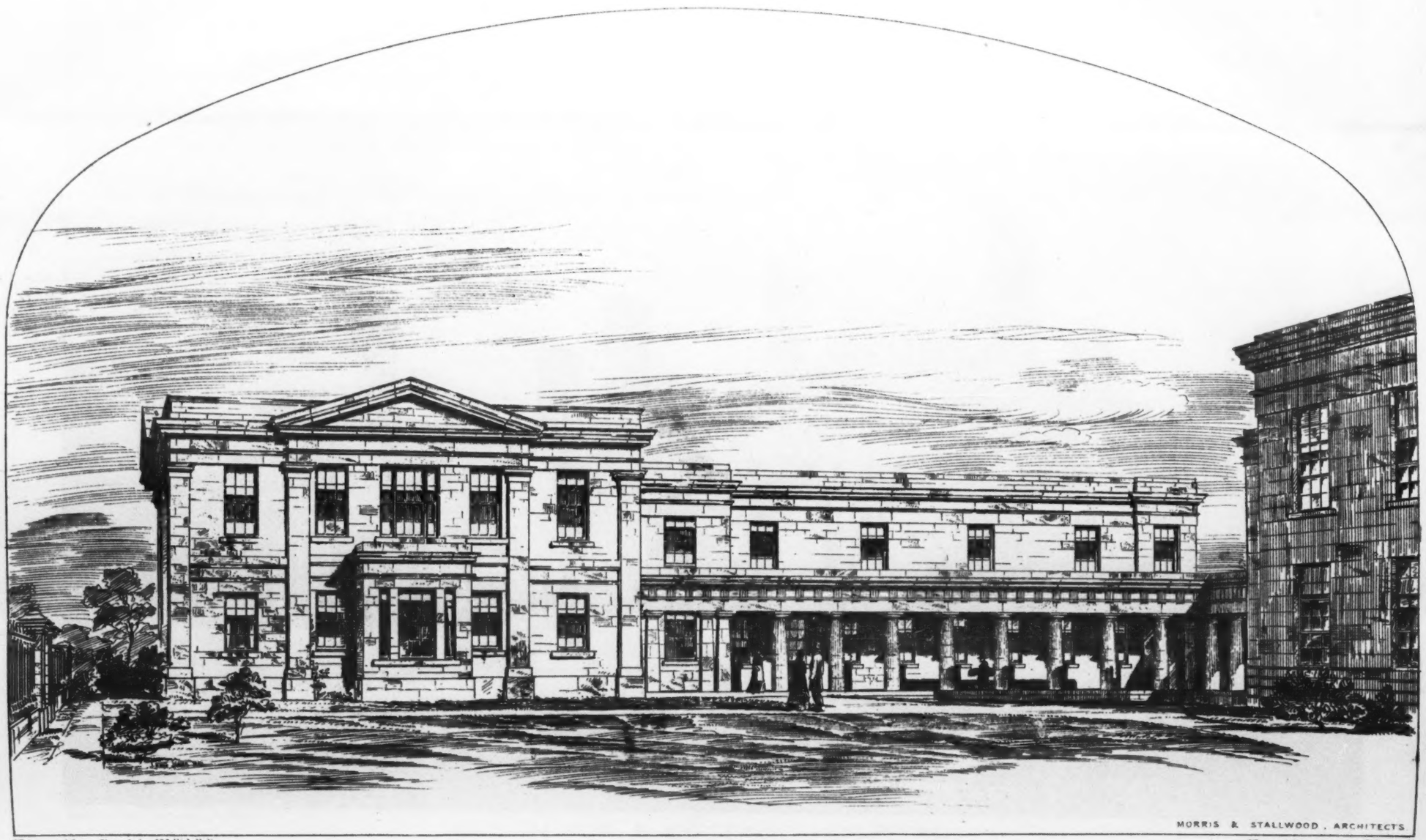
. DESIGN FOR A COTTAGE HOSPITAL .

. G.E. CARROLL . ARCHT . LIVERPOOL .



MORRIS & STALLWOOD, ARCHITECTS

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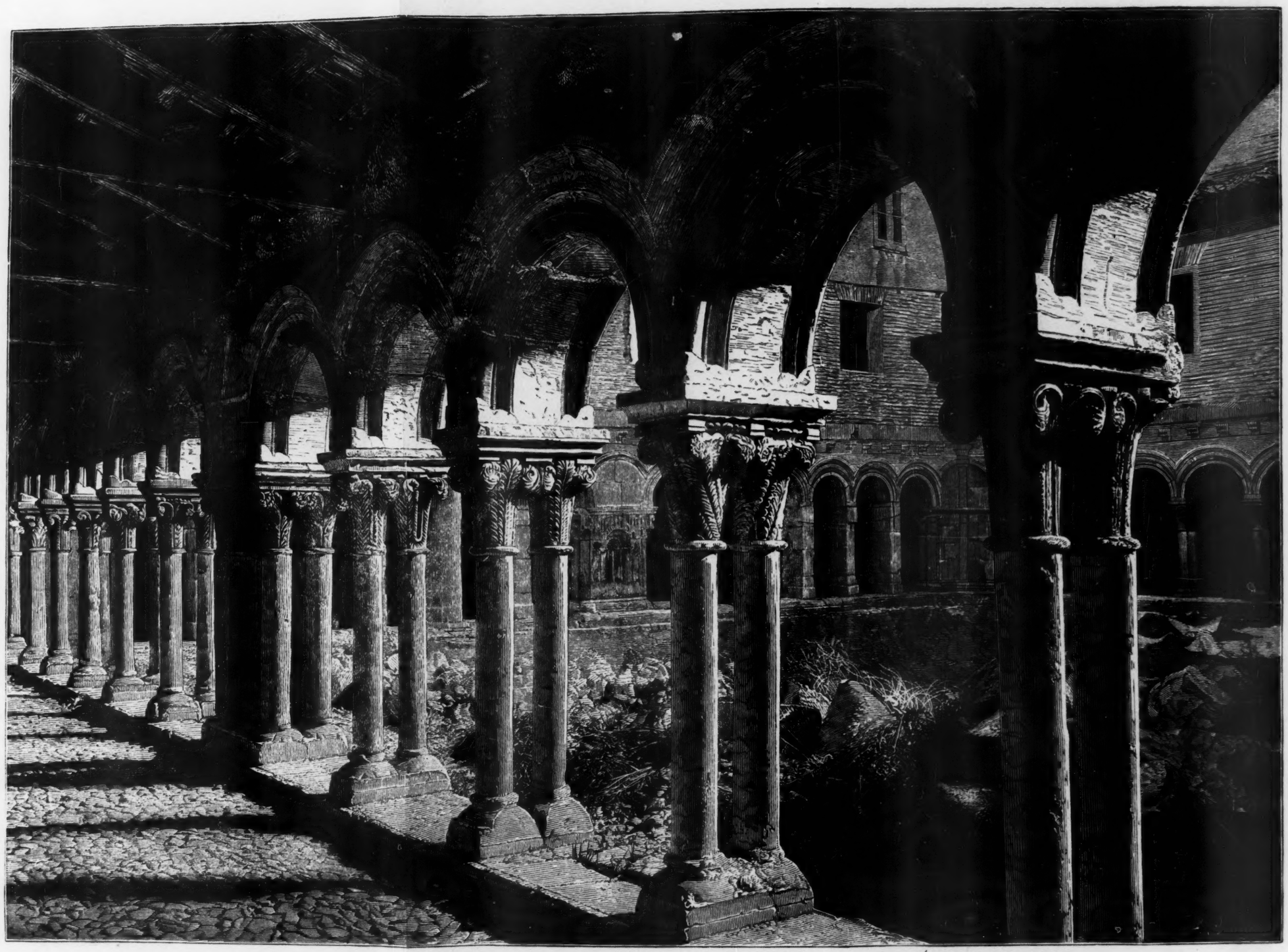
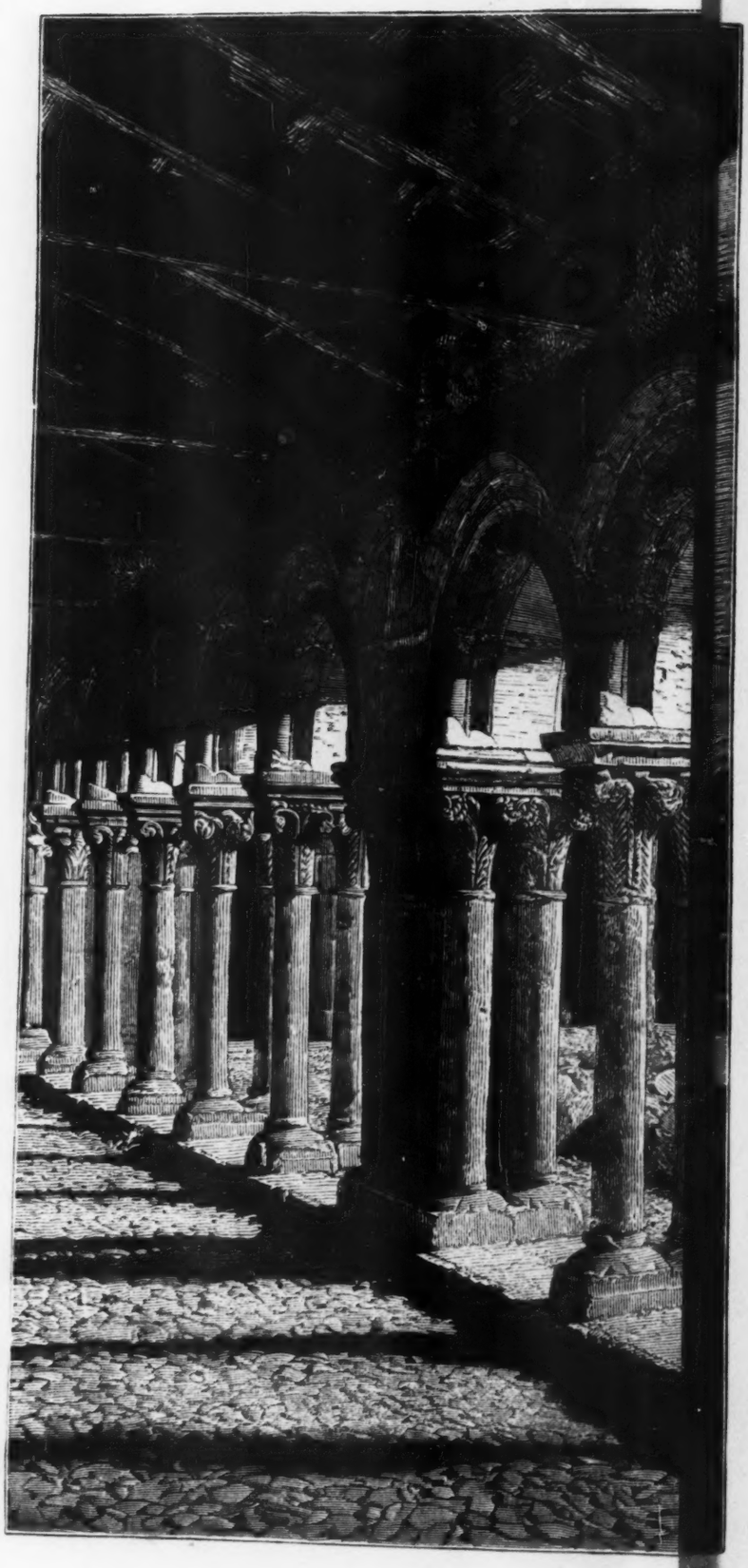
ROYAL BERKSHIRE HOSPITAL

NURSES' HOME & SERVANTS WING

NURSES' HOME & SERVANTS WING



CLOISTERS OF THE ROYAL CONVENT OF THE HUELGAS, NEAR BURGOS, SPAIN.



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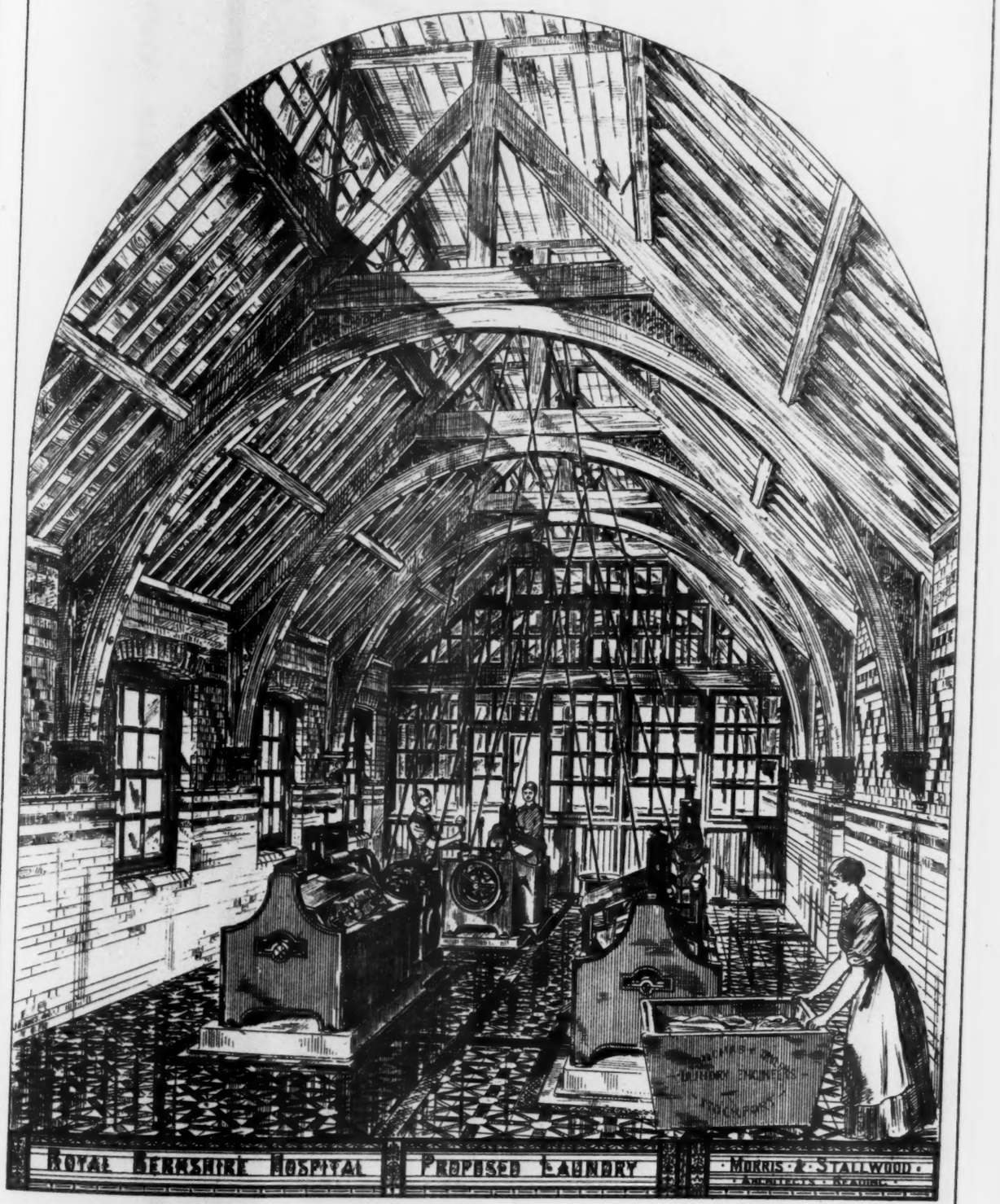

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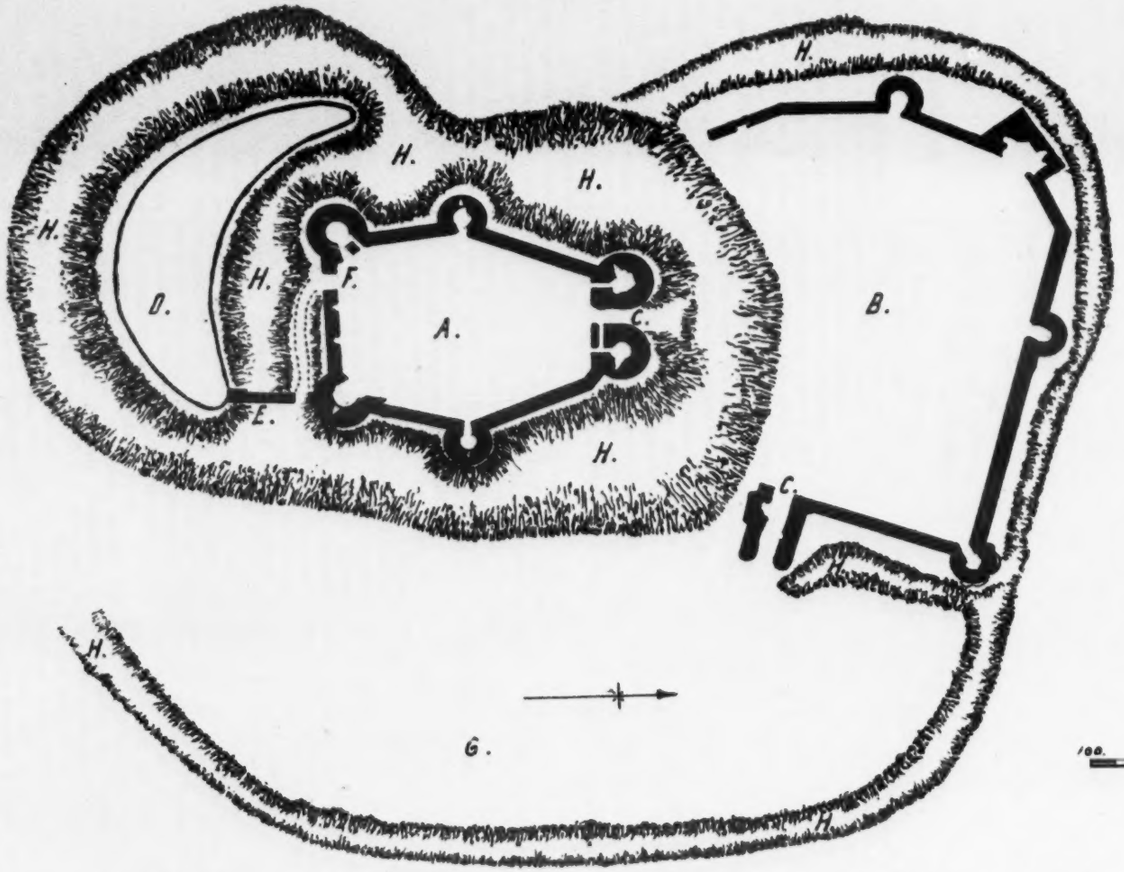
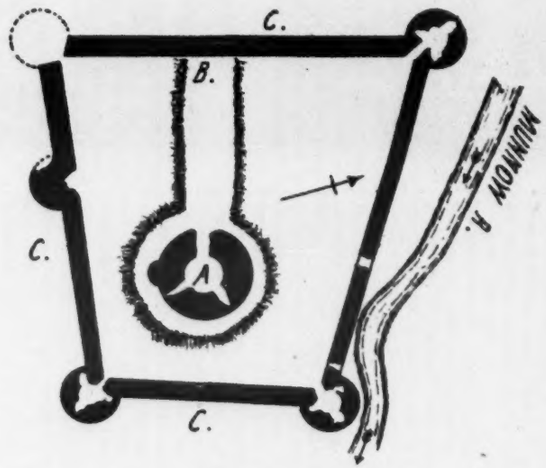
WHITE CASTLE.



SKENFRITH CASTLE.



A. THE KEEP. B. THE PROBABLE ENTRANCE.
C. ANCIENT DITCHES.

SCALE OF FEET.

A. INNER WARD. B. GREAT BARBICAN. C.C. GATEWAYS. D. LESSER BARBICAN. E. BRIDGE. F. SOUTH ENTRANCE. G. OUTWORK. H. DITCHES.

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CLOISTERS OF THE ROYAL CONVENT OF THE HUELGAS, NEAR BURGOS, SPAIN.

SPAIN is the land of cloisters, both in respect of number and beauty. We have illustrated some of them before now. Foremost amongst them are those of the Convent of the Queen Santa Maria of the Huelgas, near Burgos, of which we are able to present a view. We should scarcely go so far as Mr. Fergusson, who says, in his "History":—"It is unrivalled for beauty both of detail and design, and is perhaps unsurpassed by anything of its age and style in any part of Europe"; but we can admire it greatly for all that."

DESIGN FOR A COTTAGE HOSPITAL.

THIS drawing illustrates a design for a cottage hospital proposed to be built in a small town. The object in view has been to obtain a cheerful homely effect, entirely removed from anything suggestive of a public official building dedicated to the sick.

The whole of the accommodation is arranged on one floor. On the left-hand side of the building there is a large operating-room, a dispensary, with separate entrance for out-patients, and two wards for males, together with lavatories, water-closets, and a bath-room. On the right-hand side of the building is placed the kitchen, scullery, and other offices, and two wards for females, with bath-rooms, lavatories, &c., planned the same as those in the male wing. In all, twelve beds are provided.

In the main or centre portion of the building is placed a medical officers' room, a committee-room, a matron's sitting-room and bedroom, the attendants' bed-rooms, and a convalescents' room, which opens out into a covered verandah. The mortuary is away from the building.

The author of this design is Mr. George E. Carroll, of King-street, Liverpool.

THE FUTURE CATHEDRAL OF LIVERPOOL.

SIR,—Approval having been expressed by a correspondent of the *Builder* ("Evacuates") of Canon Venables's suggestion in the *Nineteenth Century* to adopt Wren's unexecuted design for St. Paul's for the Liverpool Cathedral, I cannot, feeling the interest in the subject of a Liverpool man, resist the desire to state some grave objections to that idea which have occurred to me since it was broached.

The unexecuted design of Wren is, it is true, in some respects, superior to the executed one. It shows a compact and simple composition externally; and internally, though not fully adapted to the Protestant service, exhibits a concentration and uniform spaciousness approximating to the ideal of a Protestant church. But with all due deference to Sir Christopher Wren, I venture to assert that its chief characteristic, the four concave façades, is a mistake, and one which he himself would acknowledge were he to live again in the light that has since his days been shed on the sources of sublimity and grandeur. The form he chose for the body of the building is a very suitable one for the abacus of the Corinthian capital, with which it is identical in horizontal section, but it is very unsuitable for the main body of a great edifice, more especially a cathedral, the grave destination of which imperatively demands straight lines and right angles, as most expressive of stability and strength; and without which, a building, though it may please by its elegance and grace, can have but little of that majesty and grandeur of character which should be aimed at in an edifice reared to the honour of God, as well as to contain a certain number of his worshippers.

He was probably influenced in favour of the curved plan by that of St. Peter's at Rome, of which it seems to be the converse, and which represents a cluster of semicircular apses; forms which render that great building less great than a rectilinear Greek cross plan, with its re-entering angles, would have done. But whether led to them by St. Peter's Church or not, the weak though graceful concave façades of the design in question, had it been executed, would have rendered the realised structure a far less imposing pile than the executed cathedral, and excluded that combination of grandeur and grace which should distinguish a great church, the lofty elevations of which should sympathise with the sublimest material works of God.

As to the *style* of the cathedral, I cannot but prefer Canon Venables's suggestion, Classic, to that of your correspondent, "Evacuates," Byzantine. I have not seen Canon Venables's article, except through extracts, but presume that he means by Classic the columnar Græco-Roman style, of which the Byzantine and Gothic were the eldest daughters, and the beautiful varieties of the Saracenic in Spain, Egypt, Syria, Persia, and Hindostan, the grand-daughters, and which is susceptible of equal refinement with the Byzantine, and equal sculptural and pictorial glory with any style. He cannot, I think, be far wrong in suggesting for the future cathedral the style of the purest days of Christianity, probably long before the time of Constantine the Great,—the style of the early Christian basilicas and churches in Rome, when their arrangements were purely Protestant; and of the first Christian temples of Antioch, Alexandria, Jerusalem, and Constantinople, and which is certainly nearest to the style of Herod's Temple and contemporary synagogues, wherein the Divine founder of Christianity frequently taught; which it is more than probable partook largely of Roman character.

The Classic style is unquestionably the prevailing style in Liverpool.

I cordially agree with Canon Venables that in the Liverpool Cathedral there should be no playing at long choirs, banishing the altar far away from the sight and hearing of the people; and also in what he quotes from Mr. Beresford Hope, "that it should realise the spirit of the age, the wants of the special town, and the requirements of our National Church, and be the true *Ecclesia*, or House of Assembly of Christians of the city and diocese"; conditions which may be fulfilled consistently with,—nay, involve,—the highest architectural beauty and grandeur.

SAMUEL HUGGINS.

SUBSIDENCE OF LAND AT DENMARK HILL, CAMBERWELL.

A GRADUAL subsidence of land has taken place on the Champion Park side of Denmark-hill Station. Some eight or ten years back (says the *South London Press*) the embankment contiguous to Champion Park presented a uniform slope, and attracted the attention of the passengers from the care and cultivation which had been bestowed upon the land. From time to time, however, and almost imperceptibly, slight subsidences occurred, and temporary remedies were introduced for the purpose of preventing more serious encroachments. These appear to have been ineffectual; for within the last month or so a very perceptible alteration has taken place in the appearance of the embankment. The clay beneath has slipped away and the consequence has been that ruts and fissures mark the surface which it formerly supported.

At the meeting of the Camberwell Vestry on the 7th inst., the General Purposes Committee reported that they had taken into consideration a report from the surveyor as to the subsidence of the footpath in Champion Park, and that he had been in communication with Mr. Banister, the company's engineer, on the subject. It was thereupon agreed that the Vestry Clerk should be directed to serve notice on the company, informing them that the subsidence of the footpath and the road required immediate attention, and that they should direct their engineer to take immediate measures to secure the public safety. Consequent on this resolution, active steps have been taken to prevent a further subsidence. Workmen have been engaged in removing the clay, and putting in chalk in its place. By this means a firmer support will be obtained, and the ground, it is anticipated, will be more effectually drained. At the De Crespigny-terrace end, where the results of the subsidence are less perceptible, the wall is being protected by large bolsters of wood.

At the meeting of the Vestry on the 21st inst., the General Purposes Committee reported that the surveyor had directed the attention of the committee to the fact of a further subsidence that had taken place on the public pathway in Champion Park, next to the railings of the London, Brighton, and South Coast Railway, adjacent to Denmark-hill Station, which required immediate attention, and recommended that the Vestry Clerk be authorised to take such proceedings, by mandamus or otherwise, as he might be advised, to compel the company to adopt effective measures to make the path and road safe and secure for the protection of the inhabitants and the public. The recommendation was adopted.

PROGRESS OF THE INSTITUTION OF CIVIL ENGINEERS.

AT the annual general meeting held on the 20th inst. the report read showed that during the past year there had been an increase of fifty-two members, 119 associate members, and forty-nine students, with a decrease of sixteen associates, while the honorary members remained the same. There were on the books on the 30th of November last, eighteen honorary members, 1,261 members, 1,406 associate members, 552 associates, and 662 students; together, 3,899. At the same date in 1860, the number of members of all classes was exactly 1,000. The student class had only been created fourteen years. In the interval, 1,462 candidates had been admitted, of whom 400 had since been elected into the Corporation, and 400 had ceased to belong to the Institution and in most instances to the profession. The deceases had been at the rate of nearly 19 per 1,000, and had included several very old members, notably Mr. James Ashwell, the survivor of the five founders of the Institution.

The income last year was 12,398*l.* 11s. 5d., besides which the receipts had included 3,076*l.* 14s. on account of admission fees and life compositions (which were rigidly treated as capital, and were not used for defraying ordinary expenses), and 431*l.* 5s. 6d. from dividends on trust funds. The general expenditure had amounted to 12,092*l.* 7s. 11d., including 6,523*l.* 17s. 8d. for four volumes of Minutes of Proceedings and for the subject-matter index. A sum of 3,000*l.* had been invested, and 390*l.* 0s. 1d. had been expended for premiums and prizes under trust. The cash balance in hand was 771*l.* 12s. 1d., being 424*l.* 2s. 11d. above what it was at the same period in 1880. The income had been nearly 4 per cent., and the total receipts 6 per cent., in excess of the previous year.

The nominal or par value of the investments held under trust was 14,642*l.* 13s. 10d., and of those belonging absolutely to the Corporation 36,838*l.* 11s. 8d., the dividends on the latter having contributed 1,433*l.* 17s. 6d. to the income. It was stated that on the 30th of November, 1867, the Institution investments (irrespective of trust moneys) were of the nominal value of 17,133*l.* 1s. 3d.; that in the next two years 18,120*l.* 2s. 4d. had been paid for rebuilding and furnishing the enlarged premises, without the necessity for calling upon individual members for special subscriptions; and that the present capital had been the growth of little more than twelve years.

SANITARY PROGRESS AT HENLEY-ON-THAMES.

THREE years ago the inhabitants of this picturesque riverside town were roused out of their usually quiet state by a resolution passed by the Local Board of Health in favour of constructing waterworks to give the town a supply of pure water. This meant an expenditure of 10,000*l.*, and was considered a needless and extravagant waste of public money by many of the principal owners and ratepayers, and an agitation was begun which resulted in many of the members of the Board who had advocated waterworks being turned off the Board, and others opposed to it taking their place. The present supply is drawn from wells, the drainage being into cesspools, in many instances so near the wells as to make it at least possible for the water to be contaminated. After the failure of the authorities to carry out their scheme, a company was formed, and a scheme prepared by Mr. Jabez Church, C.E., of Westminster. The shares were well taken up, and contracts entered into for carrying out the works, Messrs. Doowra & Sons being entrusted with the construction of the reservoir; Mr. Charles Clements, of Henley, with the buildings at the pumping-station; and Messrs. Young & Co., of Pimlico, with the engineering work, including the laying of mains. The water will be softened and filtered by Atkins's process, carried out by the Water Reform Company, Fleet-street. The works are nearing completion, and it is hoped that water may be supplied in about two months.

It has lately been thought necessary that the surveyor and sanitary inspector should devote the whole of his time to carrying out the duties of the offices, and, with a view to this desirable purpose, Mr. H. Malcomson (late surveyor of Lichfield), has been appointed.

The Local Board has lately undertaken to do all the scavenging and cleansing of cesspools in the district, thus hoping to avoid carrying out a system of drainage. A memorial, however, having been sent to the Local Government Board, complaining of the want of such a system, Capt. Hildyard, one of the inspectors, came down to hold an inquiry, and to inspect the town. At a meeting of the Local Board last week, a copy of his report was read, in which he strongly condemned the present arrangement of draining into cesspools, and he also stated that it would be impossible to allow the slop water from the lower part of the town to continue flowing into the Thames.

The Local Government Board has given the authorities six months to prepare a scheme, and it is hoped that there will be no attempt to shirk this important matter, but that efforts will be made to render the drainage of this much-frequented summer resort of visitors perfect, and it will doubtless add to its popularity as a residential place.

CRYSTAL PALACE SCHOOL OF ENGINEERING.

The certificates gained by the students of the Crystal Palace School of Practical Engineering were distributed in the lecture-room at the palace on the 17th inst., by Sir John Coode, of the Council of the Institution of Civil Engineers. Prior to the distribution, Mr. F. K. J. Shenton, superintendent of the Crystal Palace School of Art, Science, and Literature, read the report of the examiners,—Mr. F. Wentworth-Shields, M.I.C.E, and Mr. Joseph Fogerty, M.I.C.E.,—both of whom congratulated Mr. J. W. Wilson, the vice-principal; Mr. J. W. Wilson, jun., and their assistants, on the excellent work done in the school.

Sir John Coode, in the course of his address, observed that anything more satisfactory than the report of the examiners could not be conceived. Forty years ago, when he himself was preparing for the noble profession to which so many of them aspired, there was not a single institution in the country which could for a moment claim to take rank with their school. The want being greatly felt, a college for educating civil engineers was formed at Putney, but it unfortunately had only a very short existence. He mentioned this in order to impress on them as strongly as he could the advantages which they enjoyed. He had been particularly struck with the very happy combination of technical instruction with practical training which this school offered to the young man who desired to join the profession of the civil engineer, or, indeed, of the mechanical engineer.

Major Flood Page, manager of the Crystal Palace, moved a vote of thanks to the examiners, and expressed the gratitude of his directors to the distinguished members of the engineering profession who had been ever ready since the school was formed to render their services as examiners, and to tell them candidly what they thought of the institution. The vote was passed with acclamation.

Mr. J. W. Wilson, jun., afterwards stated that nearly two-thirds of the students who had left the school were in good positions.

IMPROVEMENT OF GRATES.

In a lecture on the Economy of Fuel for domestic purposes, delivered at South Kensington in connexion with the Smoke Prevention Exhibition, Mr. Thos. Fletcher, F.C.S., said:—

It is well known that all metals are good conductors and bad radiators of heat. Any metal in contact with burning fuel lowers the temperature by conducting the heat away, and our first care must be as far as possible to encase our fires with a non-conductor, such as fire-clay. If economy of fuel is any consideration, no metal must come into contact with it unless absolutely necessary. It is or was the fashion to put iron backs, sides, grates, and bars to open fires, the result being dirt, smoke, cinders, and great waste of fuel. Thousands of people who have these extravagant grates, knowing they are extravagant, go on from year to year because they object to the cost and mess of replacing them in houses which may be left at any time, the certain outlay being greater than the probable economy. I will try to explain to you how you can, with very little trouble or expense, convert these extravagant grates into the most modern and approved forms. The result will be, if my own experience is any guide, a saving of at least one-third the fuel, and more than half the dirt and trouble. There is only one fairly good non-conductor of heat known at present which can be applied to grates,—that is, ordinary fire-clay. If we use this to line a grate, the result is, if not fitted and then burnt in a kiln, it simply cracks away and falls to powder when the fire is lighted, and here is the point to which I wish to call your special attention. If you take ordinary builder's fire-clay, and mix it, not with water, but with a solution of silicate of soda, you can build, shape, or patch your fire-linings to any extent, without risk of breakage or falling to pieces. If you get cracks you can repair them perfectly with the same material, and you can also repair broken or damaged fire-clay linings already in use, provided the surfaces you wish to join or build to are clean and damp, to ensure perfect adhesion. You will of course understand that loose fire-bricks or balls are an unnecessary nuisance, as you can reduce or alter your fire-grates neatly and well by this material, using, if necessary, lumps of broken brick to fill up any large spaces, and plastering over these, making a neat finish of the whole. Silicate of soda, or soluble glass, is not exactly what soap is made from, but it is used to an enormous extent for the adulteration of soap, and can be obtained easily at a very small cost. We pay for it at the soap-works at about 1s. 3d. per gallon. One most important point is, that the iron bars under the fire shall not only be closed by building up underneath the fire-grate with bricks, but the mixture I refer to must be laid on the upper side of these bars until it is about ¼ in. to 1 in. thick, so as totally to prevent contact of the metal with the burning fuel. The front bars of the fire must be left alone; it is not possible to interfere with these without spoiling the appearance of the fire. When we get a solid fire-clay bottom, back, and sides to a fire, we get a much higher temperature, because the heat is not conducted away by the metal; we get no cinders, and our fire, burning, as it does, principally on the surface, is both brighter, hotter, and much more free from smoke. It will be found, also, that the fuel consumption is very much reduced, and the fire burns much longer without attention."

THE REMOVAL OF MATERIALS FROM BUILDINGS ON WHICH MONEY HAS BEEN LENT.

Sir,—From my experience last week it would appear that thieves need no longer fear the police or run the risk of a prison. I have a man in charge of some unfinished cottages at Edmonton which had been abandoned by the builders, and on which property I have lent money. I have an equitable mortgage and deposit of the building agreement, in which latter it is covenanted that no materials shall be removed without my written consent. The man in charge wired me the other day that a number of roughs had arrived, and were loading a van with materials from the buildings, purporting to be acting under a bill of sale.* I replied that he was to lock up any person stealing the materials, and detain the goods; but the police refused to take the charge or in any way to interfere, and so the materials disappeared and some portion of my security vanished under the eyes of the police.

What an opportunity for the thieves of London to get up bills of sale and plunder in broad daylight every carcass in the suburbs, under the eye, if not under the protection, of the police! In like manner a builder, to whom I had also advanced money, failed to complete his work at Wandsworth, and I had unfortunately to enter into possession, three months ago, under my powers contained in the building agreement. In November I entered into a contract with another builder to finish the property for me for a certain sum of money, and while he and his men were at work, a few days ago, there came upon the scene about a dozen roughs and a policeman, and forthwith a quantity of materials were forcibly taken away. It transpired that a mason who, four months ago, was employed by the original builder, sold, or pretended to sell, the materials taken away to a neighbouring publican, and, after flourishing a receipt, I was left minus the materials, the police looking on and refusing in any way to interfere.

The contractor who is responsible to me for the goods applied to Mr. Partridge on Saturday, but that gentleman simply called it a dispute of title, and referred the contractor to a superior court.

I wonder if the mason had sold Mr. Partridge's sideboard to a publican, and the roughs had dealt with it as they did with my materials, whether he would have considered it a dispute of title or sent the parties to prison?

The fact of refusing to interfere under a criminal charge in such cases opens the door to a flood of crime. The whole scum of London may now proceed to sell materials which do not belong to them, carry off the spoil, and dispose of it without fear or hindrance.

I do not complain of any man urging a claim or disputing my claim; but, with all respect to the learned magistrate and the police, I consider it a crime for a band of men to enter (trespass upon) my premises, and forcibly remove materials without my knowledge and consent, and dispose of the same before establishing a claim to them. It is no question of title, for that can and ought to be settled without a removal of goods. It is a question of crime or no crime, and if I am correct in calling it crime, then it is for the police and the magistrate to deal with it; if no crime, then it is a millennium for some of the denizens of Seven Dials.

W. G.

* A search has been made for the registration, but without result.

WANT OF A RAILWAY, EAST DULWICH.

At a public meeting held recently in East Dulwich, a resolution to the effect that a new railway was required giving additional accommodation for that district, was proposed and warmly supported by several speakers; amongst others by Mr. Mercer, who said that ten years ago there was little to be seen but green fields, and other indications of rural life. Since that time something like 4,800 houses had been built, but he was sorry to say that 40 per cent. of them were unoccupied at the present time, and it was simply because people were not afforded means of getting to and from the City quickly. Another speaker (Mr. J. Ball) said that within the last two days he had counted the number of empty houses in the three main thoroughfares of the district, viz., Lordship-lane, Crystal Palace-road, and Barry-road. In Lordship-lane, from Goose-green to Barry-road, he found 159 houses or shops occupied, 72 unoccupied, and 19 in process of building. In Barry-road, 107 were occupied, 44 unoccupied, and 12 were unfinished. In Crystal Palace-road, 215 of the houses were occupied, 105 unoccupied, and 9 were in an unfinished condition. The number of unoccupied houses amounted to about 30 per cent. of the whole. The resolution was unanimously adopted, as was also another resolution appointing a committee to wait upon the representatives of the two railway companies in reference to the construction of the proposed new line.

CURIOUS EFFECT OF A STORM.

A curious effect of the last equinoctial gales is reported from Griesheim, in Germany. A chimney had just been finished at the Chemical Works at that place when the storm came on. The total height of the chimney was 40 mètres. The upper 32 mètres above the socle were divided into four parts, which were respectively two bricks and a half, two, one and a half, and one brick in thickness, the mortar being of ordinary lime and sand. The violent wind which came on immediately after the bricklayers had finished had the effect of bending the chimney fully a yard out of the vertical line. But it did more than this, it twisted the upper portion of the chimney perceptibly round its axis out of its original position. The deviation from the vertical line begins a little above the socle, and then increases in a slight curve up to the top, which, as above stated, is fully a yard out of the perpendicular or axial line. The materials used were of very excellent quality, nor was there anything in the method of construction to account for the strange effect visible after the storm. It is clear that the mortar was not dry, and was, therefore, incapable of resisting the effect of the unusual violence of the wind.

FUNERAL OF MR. G. E. STREET, R.A.

On Thursday last, the 29th, the remains of the late George Edmund Street, R.A., P.R.I.B.A., F.S.A., &c., were interred with all due solemnity in the nave of Westminster Abbey. The procession started from the residence of the deceased, 14, Cavendish-place, Cavendish-square, about two o'clock, in the order hereunder mentioned:—

The funeral car carrying the body.

Seven mourning coaches, containing the members of the deceased's family, including Mr. Arthur Edmund Street, M.A., A.R.I.B.A, son; a brother and sister of the deceased; Mr. Wells, R.A., and a number of other private friends; besides several representatives of Mr. Street's office staff, including Messrs. Tanner, Gandy, and Holland.

Four mourning coaches, containing the President and Council of the Royal Academy, viz.:—Sir Frederick Leighton, P.R.A.; and Messrs. Alma Tadema, H. H. Armstead, Vicat Cole, J. E. Hodgson, F. R. Pickersgill (Keeper), and other members and officers of the Academy, including Mr. Fred. A. Eaton, Secretary.

Nine mourning coaches, containing the Past Presidents, Past Vice-Presidents, the Vice-Presidents, Members of Council and other officers, Honorary Associates, and other members of the Royal Institute of British Architects, viz.,—First coach, Professor Donaldson, P.P.; Mr. Charles Barry, P.P.; and Mr. George Godwin, P.V.P. Second coach: Mr. Horace Jones (the City Architect), V.P.; Mr. Ewan Christian, V.P.; Mr. F. C. Penrose, M.A., P.V.P.; and Mr. David Mocatta, P.V.P. The third, fourth, and fifth coaches contained the Members of Council, in the following order,—Mr. A. W. Blomfield, M.A.; Mr. James Brooks; Mr. David Brandon, F.S.A.; Mr. Arthur Cates; Mr. Joseph Clarke, F.S.A.; Mr. John Gibson; Mr. Henry Currey; Mr. Octavius Hansard; Mr. J. T. Knowles; Mr. Alfred Waterhouse, A.R.A.; Mr. E. G. Paley; and Mr. Thomas Worthington. In the sixth coach were Mr. J. Macvicar Anderson, honorary secretary; Mr. William H. White, secretary; Col. Sir Andrew Clarke, R.E., C.B., K.C.M.G. (representing the Royal Engineers); and the Right Hon. W. H. Smith, M.P. (Hon. Associate). In the seventh coach were Sir Philip Cunliffe Owen, C.B.; Mr. P. C. Hardwick, F.S.A.; M. le Professeur Émil Trélat, of La Société des Ingénieurs Civils, Paris (Hon. and Corr. Member); and Mr. James Abernethy, Past President of the Institution of Civil Engineers (Hon. Associate). The eighth coach contained Mr. G. J. Symons, F.R.S., President of the Meteorological Society; Mr. C. L. Eastlake (Keeper of the National Gallery); Mr. Joseph Goddard, President of the Leicestershire Society of Architects; and Mr. John P. Seddon (representing the Royal Architectural Museum). The occupants of the ninth coach were Mr. T. M. Rickman, F.S.A. (Auditor); Mr. J. Tillman, President of the Northern Architectural Association; and Mr. J. Wreghitt Connon (representing the Leeds Architectural Society.)

One mourning coach, containing representatives of the Council of the Society of Antiquaries.

One mourning-coach, containing the following representatives of the Architectural Association, viz., Mr. Aston Webb, President; Messrs. Frederick E. Eales and W. H. Atkin Berry, honorary secretaries; and Mr. J. Douglass Mathews, treasurer.

The carriage of H.R.H. the Prince of Wales, and several private carriages, brought up the rear of the procession, which took the following route:—Regent-street, Waterloo-place, Pall Mall, Cockspur-street, Whitehall, Parliament-street, Broad Sanctuary, and Dean's Yard, to the west cloisters gate, arriving at 2·50, whence the procession entered the Abbey, preceded by the choristers and clergy of the Abbey. The latter included the Very Rev. the Dean (Dr. Bradley); Canons Farrar, Duckworth, Barry, and Rowsell; and Minor-Canons Troutbeck, Price, and Cheadle.

The pall-bearers were:—The Right Hon. A. J. B. Beresford-Hope, M.P., Past-President of the Royal Institute of British Architects (representing also the Royal Architectural Museum); Sir Frederick Leighton, P.R.A.; the Right Hon. G. J. Shaw-Lefevre, M.P., First Commissioner of Works; Mr. W. H. Gladstone, M.P. (representing his father, the Prime Minister); Mr. E. Freshfield (representing the Society of Antiquaries); Professor T. Hayter Lewis, F.S.A., Senior Vice-President of the Institute; the Right Rev. the Bishop of Winchester; and the Hon. Mr. Justice Kay (representing the Lord Chancellor).

The mourners entered the Abbey in the order in which they proceeded from Cavendish-square, followed by representatives of the general body of the Royal Academicians, Associate-Academicians, and officers of the Academy; of the general body of the Fellows, Associates, and Honorary Associates of the Royal Institute of British Architects; of the general body of the Fellows of the Society of Antiquaries; and of the general body of the members of the Architectural Association. Also represented at the funeral were clerks of works, builders, and carvers who had worked under Mr. Street, including Mr. W. T. Creed (clerk of works), Mr. Wallis (clerk of works at the Royal Courts of Justice), and Mr. H. G. Margetson (carver at the Courts of Justice).

The service was full choral. The grave is in the nave, just by the pulpit, and close to the graves of Sir Charles Barry and Sir Gilbert Scott.

Besides the gentlemen whom we have already named as attending the funeral, we noticed Messrs. J. C. Horsley, R.A.; J. E. Millais, R.A.; W. Calder Marshall, R.A.; W. Q. Orchardson, R.A.; W. W. Ouless, R.A.; J. R. Herbert, R.A.; P. H. Calderon, R.A.; H. S. Marks, R.A.; T. O. Barlow, R.A.; Alfred Waterhouse, A.R.A.; E. Long, A.R.A., J. E. Boehm, A.R.A.; Marcus Stone, A.R.A.; J. McWhirter, A.R.A.; G. Aitchison, A.R.A.; R. Phené Spiers, Master of the Architectural School at the Royal Academy; Hugh Stannus; Professor Kerr; Professor T. Roger Smith; Messrs. E. Woodthorpe; W. White, F.S.A.; Bowes A. Paice; James Fergusson, F.R.S.; George Vulliamy; John Hebb; E. R. Robson, F.S.A.; E. C. Robins, F.S.A.; T. W. Cutler; E. l'Anson; F. H. A. Hardcastle; Hampden W. Pratt; H. Jarvis, jun.; Cole A. Adams; H. Lovegrove; Thomas Hawksley, M. Inst. C.E.; R. W. Edis, F.S.A.; C. F. Hayward, F.S.A.; Mr. R. L. Cox; and Sir Henry Cole, C.B. We were also informed that the following gentlemen were among many old assistants and pupils of Mr. Street who came from near and far to the funeral, viz., Mr. G. D. Oliver (Carlisle), Mr. H. G. W. Drinkwater (Oxford), Mr. W. Wood Bethell, Mr. James Bell, Mr. T. E. Collcutt, and Mr. Sidney Vacher.

No doubt many names are omitted in the foregoing account, which is, however, as perfect as it could be made in the two or three hours which intervened between the conclusion of the funeral ceremony and the time of our going to press.

The funeral arrangements were in the hands of Messrs. Holland & Son, of Mount-street, Grosvenor-square.

The Government has confided the completion of the Courts of Justice to the two gentlemen who have been Mr. Street's chief assistants in the work. This took place some little time before his death, but it was thought the mention of it might have affected him, and we, therefore, avoided doing so.——In our notice last week we mentioned as Mr. Street's executor a brother Royal Academician. This is not correct; Mr. Arthur Edmund Street is left sole executor of his father's will.

THE "ELECTRIC" PAINT REMOVER.

We have had an opportunity of seeing some experiments with the new patent "Electric" Paint Remover lately introduced into the market by the patentees and manufacturers, Messrs. Rendle Bros., of Westminster-chambers, who, already well known (in conjunction with their father, the late Mr. W. Edgcumbe Rendle) for their admirable method of glazing roofs without putty, are likely to become as well known for the valuable material which is named at the head of this article. Before describing it and its method of application, we should perhaps note that the material is chemical, and not electrical, in its action, the title "Electric" being adopted by the patentees as expressive of the rapidity of action which is one of its chief characteristics. Although the results obtained by its use are not obtained with the rapidity of lightning, the celerity with which the "Paint Remover" does the work it professes to do, and does it effectually, is very striking. As to the composition of the material, its principal ingredient, we understand, is chemically pure soda, with other ingredients, all of which are stated to be non-injurious to the wood or other material from which the paint is to be removed. One ingredient common to most paint-removers, viz., lime, is totally absent. The material, which is in the form of a white creamy paste of equal consistency, is sold in tins, and it has the recommendation of being very cheap. It is easily applied, possesses no offensive smell, contains no grit, and is not injurious (as we are informed) to the hands of the workmen using it, nor does it injure the material operated upon. It is equally efficacious for the removal of old paint, varnish, tar, rust (where not eaten into the metal), grease, japan, &c., from wood, stone, iron, marble, &c. Another application of it is for the rapid removal of wall-papers, a pint of the "Remover" being mixed with a pailful of water, and the mixture laid on the paper to be removed with a plastering brush. By the time the workman has made the circuit of a small room in this way, he will be able to quickly wash off the paper, beginning, of course, where he commenced with his brush. To remove paint, japan, &c., a thick coating of the "Remover" is spread with a palette-knife or trowel on the surface to be operated upon, and allowed to remain for about half an hour. The *rationale* of its action is that the strong alkali of the compound, acting upon the oil contained in the paint, induces saponification, rapidly forming a kind of soapy paste in which the ingredients of the paint are taken up, and when this process is completed (a matter which is easily ascertained by the removal, with a knife or other tool, of a portion of the layer of "Remover," or by its change in colour, as it loses its whiteness in proportion as it absorbs the pigments in the paint), the work operated upon can be held under a water tap, or subjected to the action of a jet of water, or washed with a flannel and water. The newer the paint, and the fewer the coats of it which have to be removed, the quicker, of course, is the action of the "Remover," one application of which will be found to be sufficient for all ordinary work. Among the specimens which we saw operated upon were pieces of painted wood and parts of japanned gas-meter-cases, and each experiment was perfectly successful, fully bearing out the claims made on behalf of the "Paint Remover."

We have stated that the material will clean stonework. This it will do, whether the stonework be covered with paint or discoloured by soot or grease. Talking of grease, we call to mind a notable instance of the defacement of a building by that kind of "matter in the wrong place," viz., the Portland stone surbase on the exterior of the Metropolitan Meat Market at Smithfield. This is disfigured by being overlaid with a veritable "dado" of grease made quite black by dirt. The cause of this eyesore is that the butchers and market-porters, in the intervals of carcass-carrying, loll, pipe in mouth, and, of course, with their greasy "overalls" on, against Mr. Horace Jones's architecture. The Corporation of London will, we think, do well to allow Messrs. Rendle to try their new material on this greasy dado, which, however much it may tend to preserve the stone, is a great disfigurement to the building.

Messrs. Rendle prepare a special solution of their material, prepared expressly for cleansing very delicate carved work, and for use in the cleaning and restoration of textile fabrics.

We have said enough to show the remarkable properties of this material, which we have no doubt has a good future before it.

PROPOSED NEW WORKHOUSE FOR ST. PANCRAS.

The Guardians of the above parish, after nominating the following architects,—viz., Messrs. Aldwinckle, Young & Hall, Hoole, Bridgman, Saville & Son, Isaacs & Florence, Verity, Norman Shaw, Seddon, Quilter, Giles & Gough, Wadron, and Gundry,—have selected the first five on the list to send in competitive plans for the new workhouse, which, it is estimated, will cost from 150,000*l.* to 200,000*l.* 300*l.* are to be equally divided between the four unsuccessful candidates; the successful one will be paid the ordinary commission on the outlay. Upon counting the votes, it was found that Messrs. Saville & Son, of 1, Argyle-square, and Messrs. Isaacs & Florence were seven each; this being so, a second voting took place, and the result was:—Saville & Son, 13; and Isaacs & Florence, 4.

THE PUBLIC SAFETY IN THEATRES.

At the meeting of the Metropolitan Board of Works on the 23rd inst., the Building Act Committee recommended that the Superintending Architect be authorised to have a translation made of the Berlin and Hamburg Theatre Regulations, and that he be instructed to obtain, if possible, a copy of the new regulations issued by the municipal authorities of Vienna, and have a translation thereof made, and that the translations be printed and circulated amongst the members of the Board. The recommendation was agreed to. The committee also reported that after the inquiry relative to the inspection of the Royal Comedy Theatre, Panton-street, and the Avenue Theatre, Northumberland-avenue, they regretted that the examination of the latter theatre had not been more carefully made, and under more favourable circumstances. A discussion of a personal character followed, in which the interference of the District Surveyor by a letter addressed to the Superintending Architect was condemned on one side and defended on the other. The report of the committee was adopted.

We have received a number of letters on the subject of these two theatres, and of the differences which have grown up between the District Surveyor and the Superintending Architect of the Board in connexion with them; but they deal so freely with persons that we have avoided discussing them. If the public safety, however, be at stake, it must of course be done.

At a meeting of the dramatic] critics of the principal London newspapers, the following resolutions were passed: — 1. That the condition of many of the London theatres, both in regard to the stage and the auditory, in case of fire and panic, is extremely unsatisfactory and unsafe. 2. That the time has come for amending the laws that apply to theatres and places of amusement generally in the United Kingdom; and that it is highly necessary to appoint a Government official, to be held publicly responsible for the safety of theatres and places of amusement, and to be assisted by qualified inspectors. 3. That, pending the introduction of new legislative measures, and for the immediate protection of the public, the control, as regards danger from fire, of all theatres and places of amusement should be placed under the direction of the official chief of the Metropolitan Fire Brigade and his subordinates. 4. That the Lord Chamberlain be invited to assist, as far as lies in his power, in the prevention of danger from fire, or alarm of fire, in theatres.

Mr. C. J. Phipps, F.S.A., has, at the request of Mr. Michael Gunn, made an examination of the Gaiety Theatre, Dublin, with especial regard to facilities for safe egress in case of panic. He finds that the supplies of gas to the corridors and staircases are quite distinct and taken from an entirely different main from that supplying the stage. Each division of the audience has its own entrance and way out, and the various attendants and officials are charged with the duty of opening all doors, &c., under their control directly the exit of the audience is impending. All internal doors and barriers open outwards, and external doors are locked back while the audience is in the theatre. There are high-pressure mains on the stage, in front and in the flies, with a fireman of the Brigade always in attendance while the audience is in the theatre. On the most crowded nights the audience is out of the theatre in four minutes, so that, Mr. Phipps says, "the danger is not from fire, but from a mad stampede." Ay; but how to prevent danger from *this* cause?

The Safety of Churches.—Very little time has been needed to produce cases in confirmation of the truth of the observations we made last week touching the necessity for attention to the modes of exit provided in churches as well as in theatres. On Christmas-day at Warsaw, in the Church of the Holy Cross, a false alarm of fire was given by some evil-disposed person. A general panic ensued, the worshippers making a mad rush to the doors. Some thirty or forty persons were crushed or trampled to death, and about sixty others were more or less injured. Again, on Boxing-day the floor of the Methodist chapel at Camborne, near Plymouth, laden with goods for a bazaar, gave way and produced a frightful panic and serious injuries to many persons.

PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

5,379. J. C. Baker, Liverpool. Ventilating buildings, &c. Dec. 9, 1881.

5,381. D. Gill, Weston-super-Mare. Water-closet apparatus, &c. Dec. 9, 1881.

5,391. W. R. Lake, London. Cesspools. (Com. by L. Mouras, Vesoul, France.) Dec. 9, 1881.

5,397. W. Whitwell, Stockton-on-Tees. Apparatus for heating air, &c. Dec. 9, 1881.

5,419. G. H. Chubb, London, and H. W. Chubb, Chislehurst. Locks. Dec. 10, 1881.

5,424. E. A. Rippingille, Aston-juxta-Birmingham. Gas stove. Dec. 12, 1881.

5,439. W. E. Barder, Loughborough. Boilers for hot-water apparatus. Dec. 13, 1881.

5,466. W. Bash, J. Bash, and N. S. Dansa, Manchester. Locks and latches. Dec. 14, 1881.

NOTICES TO PROCEED

have been given by the following applicants, on the dates named.

Dec. 13, 1881.

3,451. E. Lee, Torquay, and A. C. Moore, Deptford. Regulating the supply of water to water-closets, &c. Aug. 9, 1881.

3,535. J. C. Johnson, Gravesend. Manufacture of Portland and other cements. Aug. 15, 1881.

3,862. J. Dunnachie, Glenboig. Regenerative kilns for burning fire-bricks, &c. Sept. 6, 1881.

4,927. E. de Pass, London. Manufacturing artificial stone. (Com. by R. H. Stone, Brighton, Victoria.) Nov. 10, 1881.

Dec. 16, 1881.

3,507. E. G. Brewer, London. Plastering. (Com. by D. W. Stockstill, T. J. McGeary, and E. W. Anderson, Washington, U.S.A.) Aug. 2, 1881.

3,512. T. Redmayne, Sheffield. Stoves and fireplaces. Aug. 12, 1881.

3,523. W. Brierley, Halifax. Venetian blinds. (Com. by F. Rüler, Teplitz, Austria.) Aug. 13, 1881.

4,678. S. Leoni, London. Apparatus for heating, cooking, &c., by gas. Oct. 26, 1881.

ABRIDGMENTS OF SPECIFICATIONS

Published during the Week ending December 17, 1881.

1,981. G. Giles, Birmingham. Cornice-poles.

A tubular pole is open-jointed on the underside, and has within it another pole on which is a right and left handed screw. On the inner pole are the rings for the curtains, each of which has a tooth working in the screw. On the end of the pole is a toothed roller end, which is actuated by a cord, and makes the pole revolve, taking backwards and forwards the curtain rings. May 7, 1881. Price 4d.

1,983. C. J. Pollard, Burnley. Stoves and fire-ranges.

A chamber, in the sides of which are air-passages, is placed in the centre of the stove or range, and fitted with a damper to regulate the supply of air admitted to the fire. (*Pro. Pro.*) May 7, 1881. Price 2d.

2,000. E. Edwards, London. Wrought-iron window-frames.

The frames and cross-pieces of the windows are made of iron of hollow square cross-section and a bed of non-conducting material is arranged between the parts to prevent cold air entering the room. (Com. by C. A. Schütz, Stralsund.) May 9, 1881. Price 6d.

2,021. E. V. Harris, Winchester. Sliding window-sashes.

The sash-tiles are divided, and to the side portions that slide in the gooves of the window-frames the sash is pivoted, so that it may be swung over for cleaning, &c. (*Pro. Pro.*) May 9, 1881. Price 2d.

2,037. H. J. Haddan, Westminster. Apparatus for drying, roasting, &c.

The oven and flues are formed of brickwork. A screw-conveyor and its casing, which are of metal, are placed over the oven. The fireplace is at the side of the oven, all round which the flues extend. (Com. by E. H. Potter, New York, U.S.A. (*Pro. Pro.*) May 10, 1881. Price 2d.

2,040. P. Jensen, London. Artificial stones or compositions.

Pulverised asbestos is mixed with a silicious solution of 25° to 50° Baumé, metallic oxides, and chalk, plaster of Paris, lime or clay. In the thicker states this forms an artificial stone, and in the thinner states a paint or cement (Com. by E. J. Erichsen, Copenhagen.) 10th May, 1881. Price 4d.

2,044. W. Clapham, Leeds. Fire-grates.

The bottom gratings of these grates have a rising and lowering motion by a rack and pinion, by which motion the size of the fire is increased or reduced. (*Pro. Pro.*) 10th May, 1881. Price 2d.

2,059. A. Guattari, London. Machinery for producing designs upon marble.

The surfaces of the moulds are roughened or covered with fine pyramidal teeth. The moulds are lifted by tappets on a rotary shaft, and allowed to fall upon the block to be carved. Emery powder falls upon the back of the mould, and water being distributed through a rose carries the emery between the roughened surfaces of the mould and the block. (*Pro. Pro.*) 11th May, 1881. Price 2d.

2,060. A. M. Clark, London. Window-cleaning chair.

This chair has a platform, folding guards, supports, steps &c., which can be arranged in either an open or folded condition. It is secured in position by a flat bar adjustably held in position by angle rods that project from each end of the bar up through slots in either side of the platform, where they are held by plates with bevel-edged perforations engaging teeth in the rods. Screws are used to clamp the bar. (Com. by Mrs. A. Dormitzer, New York, U.S.A.). May 11, 1881. Price 6d.

2,087. G. Osborne, Brighton. High-pressure regulating taps or valves.

This is an improvement on Patent 2,994 of 1875, in placing the additional valve near the stem of the ordinary valve on the upper side of the passage of the tap, instead of on the under side, so that it is easier to get at the stem or spindle when required. May 13, 1881. Price 6d.

2,100. A. A. Bedford, Clapham. Locks or fastenings.

The novelty here is that the handle must be pressed inwards before it can be turned, and when it is released a sprig forces the handle out again, so that the door cannot be opened by mistake. (*Pro. Pro.*) May 13, 1881. Price 2d.

2,105. F. C. Jeune, London. Manufacture of ornamental embossed fabrics for covering walls, &c.

Indiarubber is thoroughly cleansed and reduced to dough by a spirit solvent. This dough is mixed with an equal quantity of finely-ground cork, and spread on a cotton fabric. After being dried it is rolled and faced. The embossing is then performed by flat pressure, under a block having the desired pattern, and afterwards the fabric is coloured and varnished. May 13, 1881. Price 2d.

* Compiled by Hart & Co., patent agents, 28, New Bridge-street, E.C.

RESOURCES OF IRELAND.

At the Statistical Society, on the 20th inst., Dr. Balfour in the chair, a paper was read on "The Industrial Resources of Ireland," by Mr. G. Phillips Bevan, D.L., showing that the industrial position of Ireland has been strangely neglected, the attention of statesmen and others having been entirely engrossed with the political side of the question. Great ignorance, moreover, prevails as to what the industrial resources of the country really are. It is very clear that, with a few exceptions, the industries have been declining, as has also the industrial section of the population. There is no industrial point on which there is more misapprehension than about the coal and iron deposits of Ireland, which it is the fashion to ignore, though most unfoundedly. The coal deposits of the Leinster field are estimated to possess 102,580,000 available tons; those of the Munster field, 20 millions; of the Connaught field, 10 millions; of the Ulster field, 48,900,000; total, 182,280,000; and yet, with all these known valuable beds, the collieries of Ireland are in a languishing condition, the annual outputs never exceeding 140,000 tons, and seldom reaching that. While in 1876 the Leinster field alone produced 170,000 tons, the total yield of all Ireland in 1880 was only 133,719. No wonder, then, that the number of collieries is on the decline, as also of coal miners. It is the more unaccountable, as the coals are of excellent quality, both bituminous and anthracite, and the annual consumption of coal in Ireland is now nearly three million tons. Two centuries ago, Ireland possessed a flourishing iron trade, charcoal-smelted; and it has since been proved by competent authorities that the best iron can be made in Ireland as cheaply as in England; and although English and American competition would keep Irish iron out of the markets of the world, there is no reason why a large home demand should not be supplied at home. Cement works have been started in County Fermanagh by Mr. Bloomfield, of Castle Coldwell, and have proved a great boon to the neighbouring country. The Irish building stones, which are of unequalled beauty and goodness, have been greatly overlooked. Probably no country in the world produces finer marble, and yet Bath freestone has actually been imported at vast expense rather than use the stones at hand. The suggestions proposed are,—that an exhaustive examination should be made of every corner of Ireland by a Royal Commission, so as to obtain authoritative information of what the country is capable, and to ascertain why it is, for instance, that collieries are worked to such poor purpose; why an iron trade cannot be started; why woollens should not again be a national industry; why the fisheries should not be made more economically useful, &c. Premiums or bounties

should be offered, as was done with great success on the starting of the linen trade, and is being done in the fisheries, for the development of any new industry, and particularly for the applications of new materials. The lack of communication is a great drawback to Irish prosperity. Cheap light railways should be laid down between the west and north-west coasts and the interior, so that the wilds of Donegal, Mayo, Galway, Clare, and Kerry may be opened up and connected with markets. The rates of existing railway systems should be reduced, and by means such as these, present industries would be created, giving occupation to great numbers of starving people, while industrial energy would follow permanently in their track.

THE DURABILITY OF CALCAREOUS STONE.

SIR,—Referring to Mr. H. Travis's letter of the 3rd inst., and his remarks on the perishable nature of the calcareous stones used in our public buildings, and Mr. Codner's "Notes on our Cathedrals," p. 738, I shall be glad to make a few observations on the durability of calcareous stones, if you will kindly allow me, in your valuable paper. Having had thirty-five years' experience as a stone-carver in most parts of England, Ireland, and France, and for nearly two years taken casts from the old work for the Mediæval Court at the Crystal Palace, I have had rather a large field of observation with regard to the durability of the stones used in our Mediæval architecture.

When engaged on the carving at the west front restoration of Wells Cathedral, I pointed out to my late partner, C. J. Herley, the fact that I had noticed at Beverley Minster, York, Lincoln, Peterborough, Salisbury, &c., but here to a more marked extent, that the faces of the towers looking east and north were in a much higher state of preservation than those looking west and south; in fact, here,—Wells,—at the north-east angle of the north tower, the figure-ornament and mason's work are as sharp as when first cut, though they have been here about 700 years; the clawtool marks are quite plain. The stone is a fine limestone, an oolite, impregnated with a metallic oxide from Doulting, near Shepton Mallet, while that of York, Beverley, and Lincoln is a magnesian limestone from Bramham Moor, Tadcaster. The Percy shrine, Beverley Minster, one of the finest monuments of the Decorated period in England, is in Tadcaster stone, and is as sharp as when first done, though erected in the reign of Edward I. The same observation may be made with regard to our Portland stone buildings of London, Dublin, &c. Notice St. Paul's Cathedral on the north side,—Grinling Gibbons's carved panels are as good as ever; the same at Somerset House, the "Strand" north front,—those keystone heads, "the river gods of England," by Bacon, are as sharp as ever, only black, while the river front looking south is more decayed.

All this proves that it is not the cold frost or smoke that decays the stone, but the wet, as our south-west winds, giving us the benefit of the gulf-stream, are always more charged with moisture; and that if these calcareous stones can be kept dry, they will stand for an indefinite period. The question is, how to keep the water from percolating the stone? When erecting some monuments in the Dublin Cemetery, I noticed the clean whiteness of the Portland stones there; some that had been fixed for years surpassing anything I had noticed before, even in that mountainous cemetery of Père la Chaise of smokeless Paris. An unpractised eye might have thought they had been painted, but to paint stone is to spoil it. No, there were the little shells and flints, showing the proper granular surface of the stone. I found it was the practice of the cemetery masons there always to oil their Portland stones with boiled linseed oil; it must be done when the stone is quite dry. A warm summer's day is the best time, and only one coat, as a second would stand on the surface and turn dark; the result is, that the surface bleaches out almost as white as statuary, and the oil that is absorbed by the stone keeps the wet from percolating, and so preserves the stone. No doubt, a good deal of the soot that sticks to the surface is caused by the suction or capillary attraction of the stone; this has been stopped by the oil, is loose, and is washed away by the rain, and the stone kept clean. I have no doubt, if all the Portland and Bath stone buildings of London were treated in this manner, they would stand longer and keep cleaner; and if all the black bronze statues were gilded like King William at Hull, or Prince Albert in Hyde Park, London, they would have a more cheerful appearance than they now have.

C. ABBEY.

EMBLEMS OF THE TRINITY.

SIR,—I have read with great interest Mr. Dobson's recent lecture on "Symbolism," which is given in the *Builder* for December 10th. It may be of interest to your readers to know that there are still existing in England some representations of the "Trinity" which have escaped destruction. I have lately seen the following:—

1. On the slab of an altar-tomb, on the north side of the chancel of the parish church of Cookham, on the Thames, is a small "brass," about 6 in. in diameter, on which is engraved a representation of the Holy Trinity, in precisely the same manner as in the Yorkshire glass. This brass, it appears, was covered over by the base of a small pillar, supporting a "late" canopy, and, being thus hidden, it escaped being torn up, as so many other brasses were, in the troublous times of the sixteenth century.

2. There is a very perfect and well-carved representation of the Trinity in a niche in the west gable of the nave of the church of Creech St. Michael, in Somersetshire, a short distance from Taunton. The carved group appears to be about 3 ft. in height; its great distance from the ground, and the difficulty of getting a ladder to reach it, are, without any doubt, the causes of its preservation to our time.

3. A very curious group of the Trinity still remains *in situ* in its niche, at the south-west angle of the tower of the church at Comb Martin, in North Devon (near Ilfracombe). This carving is placed at a great height from the ground, and is in an exceedingly difficult position to get at, either from below or from the top of the tower: to this cause (as in the case of Creech St. Michael also) we owe its safety. In these three groups the Eternal Father is represented as "The Ancient of Days" robed in a cope and crowned as a king, holding His Divine Son crucified; the arms of the Father being extended so as to support the cross, whilst the "Paraclete Dove," the Holy Spirit, hovers over the head of the Son, just where the "morse" of the cope is usually seen; the heads of the Three Persons are surrounded by "nimbi," that of the Son being a cruciform one. The Eternal Father in each case is seated on a throne. It was in the fourth century that artists began to represent the mystery of the Trinity as a group of three persons. These Divine Persons are sometimes represented as supporting a triangle. From the twelfth century upwards we see representations of the Trinity, such as those which I have just described. In many monuments of the thirteenth and fourteenth centuries we see symbols of the Trinity, such as three equal circles interlaced, three triangles entwined, and many other ingenious devices of a like nature. I have seen a very beautiful "Trinity" emblem of this kind engraved on a hewn stone, lying covered by brambles, near an early oratory (now in ruins), at Cahir, county Tipperary, Ireland; it is dated from about A.D. 1200. In the fifteenth and sixteenth centuries we often find figures of the Trinity represented as "triune" ones, that is, three human figures having their three visages united as one. This type has often been condemned and reproved by the Councils of the Church, and they have gradually disappeared from use. In the three examples of this subject which I have cited the Son is crowned with thorns, as in the illustration to Mr. Dobson's lecture. So great a similarity of design shows that there must have been a certain "canon" or rule of representation of sacred subjects prevailing amongst all Christian artists from a very early period, of which "canon" we get glimpses in such literary remains as the "Album of Villars de Honicourt," and in the still earlier pages of Theophilus, the "Monk of Mount Athos." The same rule or "canon of art" is followed out up to this day by the painter "deacons" of the Greek church.

MICHAEL J. E. BUCKLEY.

SIR,—It was with very great interest I read Mr. Dobson's paper on "Symbolism," also Mr. Hems's note on the "Emblem of the Trinity at Black Abbey, Kilkenny," and beg to remind him there is one similar to the one he mentions at Muchelney Abbey, Somerset (see the *Builder*, vol. xxxvii., p. 1078). This interesting relic was dug up during the excavations that have been made there, and was, when last I saw it, in the parish church which adjoins the site of the abbey. Unfortunately, the head of the Eternal Father is missing, but both hands remain, and are placed one on each side of the Son, who stands in front of the Father. The Son in this case is represented as a boy without the cross, and the dove is held in his hands in front of the body.

This valuable relic was found in a small chapel on the north side of the abbey church, near a tomb of one of the abbots. On the top of this tomb is the effigy of an abbot in full vestments, his feet resting on a lion. This figure is, strange to say, also headless.

The tomb being fourteenth-century work, and the emblem and tomb being of the same description of stone (not native), in all probability they are of the same date.

The figures are coloured gold, vermilion, and blue.

T. SHELMERDINE.

DEVELOPING SOUTHAMPTON.

SIR,—I have read the able letter of Mr. James Lemon in your publication of the 17th inst., offering some further information on this subject, and, observing a little incorrectness in the same, permit me, as engineer and surveyor to the Corporation, to add a few remarks in correction thereof.

The Corporation have not extended their paving operations with blue bricks directly in lieu of Caithness stone or any other description of paving, or on account of the former being laid at half the cost of the latter, as stated. The question of blue brick *v.* Caithness stone paving has not, to my knowledge, arisen in this borough, there being no difference of opinion as regards the superiority of Caithness stone. The blue brick paving has simply been laid to supply a great public and long-required improvement over the rough gravel foot-walks, principally in the suburban streets, where, as is the case in a great many other towns, it proves a most excellent, durable, and cheap paving. As regards appearance, I think the fact that the Corporation have received thirty memorials from the ratepayers during the last twelve months in favour of an extension of this class of paving proves that there is nothing objectionable under this head. Caithness stone is laid in the main thoroughfare.

Concerning the new roads which have been made up in the district of Portswood not being considered street improvements, they are not referred to as such in your article of the 3rd; but, under the well-known clause, section 150, of the Public Health Act, they can be classified as street improvements.

W. B. G. BENNETT, Assoc. M.I.C.E.,
Borough Surveyor.

ARCHITECTS' CERTIFICATES.

IN THE COURT OF APPEAL.—GOODMAN *v.* LAYBORN.

ON December 12, this appeal came on for hearing from the judgment of Mr. Justice Lindley and Mr. Justice Grove, who directed that a certain document was a certificate of an architect, and therefore that the amount stated therein was due to the builder for extras, though no written orders had been given to him for them. The document in question was endorsed "Estimate of extras and deductions," &c., and it contained a number of items and prices, being respectively extras and deductions, and the sum of 125*l.* came out as due to the plaintiff. At the foot the architect had written opposite this sum, "Balance due as in conditions, 125*l.*," and lower down had signed it "W. G. Osborne, architect, Ramsgate." Mr. Woolf appeared for the defendant, the building owner, the appellant; Mr. E. S. Roscoe for the plaintiff, the builder, the respondent. The Court held that, looking to all the circumstances of the case, and to the form of the document itself, this was not a certificate. If it had been, it would have done away with the want of written orders for extras, but as they could not hold it to be a certificate within the meaning of the contract, the absence of written orders was fatal to the validity of the plaintiff's claim. [When will architects and builders learn that the terms of contracts are meant to be observed, and are not mere surplusage?]

BITTESWELL CHURCH, LEICESTERSHIRE.

The restoration and additions to Bitteswell Church were commenced early in last autumn; the old church having been found to be in a bad state of repair, and the chancel condemned as being unsafe.

The church was repaired and "beautified," as the parish record hath it, in the early part of the present century, at which time the present Perpendicular windows were inserted, and the oak pews put up, which latter, though displaying to our eyes poor work, still are very fair, considering the period they were designed in. The outside of the church and the fine substantial tower have also been coated with a brown cement, to which time has now given a not unpleasing colour. The stonework alone appears on the spire of the tower, which is very graceful, and is much admired.

A still later addition was made to the church of a north transept, the arch of which it has been deemed necessary to secure in the present alterations.

The work now in progress comprise a north aisle the whole length of the nave, the modern transept being incorporated into it; it is divided from the nave by an arcade of four Transitional (Decorated to Perpendicular) arches on octagonal-shaped pillars.

At the east end of this aisle is introduced a vestry large enough to hold the organ, which will face the chancel.

The double arches between the tower and nave of the church have been re-opened, and the modern gallery removed; these arches are very curious; the tower, being for some 30 ft. up of Norman work, was originally attached to an older church, which was removed at a later period and the present church built, the west wall of which was built against the east wall of the tower, pierced with a high Perpendicular arch, which stands out in front of the fine semi-circular arch in the tower wall behind; the effect is peculiar and interesting.

The whole floor of the nave is being lowered to the old level, and the chancel floor will be raised by several steps to a higher level towards the altar.

The old chancel has been taken down, and a new one, in Late Decorated style, built on the old lines.

The south porch,—a modern erection in cement,—has been removed, and a new porch, Decorated in style, put in its place.

A new oak altar and reredos are being made. The latter will be in three compartments, filled in with mahogany panels, upon which are painted Scriptural subjects, after the manner of the Early Italian masters, which has been kindly executed and presented to the church by Mr. Andrew Donaldson, a resident in Bitteswell, which reflects great credit upon his artistic powers. The centre panel represents the Holy Child in the manger, between the Virgin Mother and St. Joseph, boy angels float about singing the "Gloria in Excelsis," whilst others kneel adoring.

The two side panels are filled in with angels adoring and playing on various musical instruments.

The woodwork of the reredos is in oak, and designed in the Perpendicular style.

The works are being carried out by Messrs. Law & King, from the designs and under the superintendence of Mr. Walter F. Lyon, R.I.B.A., of Lincoln's Inn-fields, London.

INDIAN ARCHITECTURE.

Sir,—After the warm eulogy by Sir R. Temple at the Institute, on the 5th inst., of Indian architecture, the following notes on some of the buildings referred to may be acceptable. They are mainly within the red sandstone fort of Akbar at Agra, and form an architectural group of unsurpassed beauty and interest. No creed possesses a temple of worship expressing a purer spirit of devotion than the Taj, or Moti Musjid, "the Pearl of Mosques," with its gleaming white domes crowned with gold, its silent marble aisles, its basement, arches, spandrels, and friezes of pure white marble, inlaid with exquisite designs in coloured stones. The sarcophagi of Shah Jehan and his wife Noor Jehan, are inlaid with agate, carnelian, bloodstone, and lapis lazuli, and there are numerous inlaid Arabic inscriptions in black marble. Surrounding these is a glorious marble screen of perforated tracery panels, each 6 ft. high and 3 ft. wide, with the frames inlaid with precious stones brought from all parts of India, from Persia, Arabia, and Ceylon.

With all this, the effect is one of such perfect purity that the opening lines of Wordsworth's sonnet have been applied to this building,—

"Quiet as a nun, breathless with adoration,"

And certainly human love never raised a more beautiful memorial of its joy and sorrow than "the dream in marble" on the banks of the Jumna.

The mausoleum of Prince Elmah-Doulah, and other buildings, have external arches filled in with delicate geometrical tracery, and dados panels, and friezes of coloured ornament, inlaid in white marble. The pointed arch is universal, and is generally four-centred.

The Diwan-i-Am, or public audience-hall, is 200 ft. long by 75 ft. wide, and has forty pillars supporting the roof.

Beyond the gardens is the Diwan-i-Khass, or private hall of audience, an exquisite chamber of white marble, with pillars of wonderful beauty. The white marble is everywhere relieved with graceful floral designs in precious stones, inlaid with marvellous art.

The Samman Boorj, a delightful little marble summer-house, overlooks and commands a splendid view of the River Jumna, on which boats of grotesque shape, laden with corn, float lazily down. It is as beautifully ornamented as the other buildings. To this charming little retreat the ladies of the harem had access. On plan it is an octagonal room, surrounded by an arcade, and it is surmounted by a cupola with a gilded dome. Geometrical designs, in coloured marbles, adorn every part. Here the Emperor played on the marble chequered floor with his women the game of "pachesse," and snatches of Persian song were heard from an adjacent tower. Not far distant is the harem bath-room. It is a large dimly-lighted chamber, covered with paintings and mirrors, in which many a lovely form has doubtless been reflected. The water entered in cascades over rows of lamps.

The Khass Mehal, or private drawing-room, also overlooks the river, and has windows of marble trellis, panels of marble or alabaster so thin as to be semi-transparent. Next are the private apartments of Shah Jehan, of plain red sandstone, in which he died in virtual captivity to his son.

The Palace of Jehanger stands beside that of his son, and, though in ruins, is distinctly of Hindoo character. Wooden buildings, with beams, lintels, and immense brackets, are slavishly copied in stone.

The Mosque (142 × 56) is a broad pavilion of several aisles, separated by rows of columns and arches. The perfection of its proportions, and the marvellous combination of simplicity and grace strike every beholder. Nothing calls for admiration but pure architectural design, whereas in the Taj one might be overcome by the vast wealth of gems and marbles, and the great evidence of human labour.

The late Mr. Bayard Taylor says,—"To my eye it is absolutely perfect. While its architecture is the purest Saracenic, which some suppose cannot exist without ornament, it has the severe simplicity of Doric art. It has, in fact, nothing that can be properly called ornament. It is a sanctuary, so pure and stainless, recalling so exalted a spirit of worship, that I felt humbled as a Christian to think that our noble religion has never inspired its architects to surpass this Temple to God and Mahommed.

These monuments, with their Mosaic ornaments, have recently been restored by the Government of the North-Western Provinces of India as far as possible to their original integrity, and at a cost of some thousands of pounds. This is a graceful and generous act, the effect of which will not be thrown away upon the people. It may be added that beautiful gardens, with majestic trees and shady walks, set off these monuments to the best advantage.

These few notes show that Sir Richard Temple was fairly justified in the praise he bestowed on Indian architecture, but that "the Great Mogul was perhaps the greatest architectural genius who ever lived, not excepting the ancient Greeks," may be questioned, inasmuch as the buildings of Agra are not absolutely unique and original. What architectural work is? Perhaps there will be a more general admission of the statement that "in respect of taste, imagination, and everything that related to beauty and sublimity, and to æsthetic culture," the natives of India far surpassed us. H. T.

TEMPLE BAR.

Sir,—In reference to the re-erection of Temple Bar, as alluded to in the address of the President of the Royal Institute of British Architects, I observed that he did not name any very appropriate site to replace it. I have looked forward with hope that some of your able contributors might rescue it from annihilation, and, seeing no such movement, I have therefore taken this opportunity of suggesting that it would be a very good position if rebuilt at Storey's-gate, St. James's Park, in place of the present mean iron gate at the end of Great George-street. If the City authorities would part with the old stones it would be a noble and a useful retirement from its former busy and admired position, now, however, outgrown its original purpose. It would be sufficiently large and appropriate for the park entrance, as would the statues on either side.

The supporters of the royal shield of arms should be reinstated as formerly over the foot entrances, and the arms over the centre arch, with a trophy of banners, &c., not forgetting to show, by a tablet or in some other way, to posterity its original name and situation, where now stands the useful and handsome memorial to its respectful memory. W. H.

THE LATHING STAFF.

Sir,—At page 248 of the third edition of Moxon's "Mechanick Exercises" (1703) mention is made of a plasterer's tool called a "lathing-staff." It is figured as resembling somewhat an old-fashioned boar-spear, having a broad lance-shaped head, a short shaft with a hook at the end, and a short cross-arm through the shaft a little below the head. Moxon described it as "a *lathing-staff of iron*, in the form of a cross, to stay the cross laths while they are nailed to the long laths, and also to clinch the nails."

I am very desirous of learning whether a tool answering this description is at present in use by plasterers, and whether it still goes by the same name. If it is not now in use, whether such a tool is known to have been formerly so; and also what equivalent tool is now used.

Alex. Beazeley, M. Inst. C.E.

LIGHTING BUILDINGS.

Sir,—Having to fix an electric lighting apparatus in a building for the purpose of illuminating a screen, I am at a loss to know where to place the light so as to secure the greatest amount of illumination on the screen. The building is 80 ft. by 40 ft. The light must be placed on a gas-pipe which runs along the middle of the building from end to end, and is 30 ft. from the ground. The screen is on the wall directly under the gas-pipe, the middle of it being 23 ft. below the gas-pipe. Can any of your readers tell me how far to place the light from the wall? If some one would give a rule for finding the distance it would oblige Electricity.

LIBEL ON A DISTRICT SURVEYOR.

KNIGHTLEY *v.* LETT.

It was stated that the plaintiff in this case (Queen's Bench) was district surveyor at Hammersmith, and the defendant, who was a retired solicitor, owned some property in Hammersmith. The defendant wrote to the Board of Works complaining that the plaintiff left his business in Hammersmith to be managed by another person, whilst he himself carried on business elsewhere, and that he had attempted to extort money when it was wanted to call him as a witness. The plaintiff claimed damages for these statements as libellous, and at the trial before Mr. Justice Mathew, the jury found for the plaintiff, damages, 150*l*.

Mr. Murphy, Q.C., for the defendant, now moved for a rule to show cause why there should not be a new trial. He submitted to the Court that the learned Judge had not properly directed the jury upon the question of privileged communication, and also as to some other matters, that the verdict was against the weight of the evidence, and that the damages were excessive.

Rule granted.

VARIORUM.

"Modern Alphabets," designed by Martin Gerlach (Fischer, St. Bride-street), are overflowery. Nevertheless, they are very well done, and may be found useful by writers, bookbinders, and others.——"Simple Hydraulic Formulæ," by T. W. Stone (8pon), has for its main object the purpose of enabling miners and others engaged in sluicing operations, or in the use of water for other purposes, to check the quantity supplied to them. It does, however, more than this. It has many diagrams.——"The Wild Garden," by W. Robinson, F.L.S., illustrated by Alfred Parsons (the *Garden* office), is a charming little book, and ought to produce good results. Its object is to make our groves and gardens beautiful by the naturalisation of hardy exotic plants, and has suggestions for the regeneration of the bare borders of the London parks. Mr. Robinson has a genius of his own.——Diaries come before us from all sides. Those of Messrs. T. J. Smith, Son, & Co., are varied and well esteemed. They have large Scribbling Diaries and Small Scribbling Diaries, Diaries in limp covers and Diaries in tight; in fact, all may suit themselves if they will take the trouble to read the published list.——Messrs. Hudson & Kearns's Diaries we praised last year, and they have been improved. Their distinctive feature is their comprehensiveness, each volume forming in itself a complete set of books indexed and paged throughout. Nos. 12 and 13 are specially arranged for the use of architects and surveyors, but are most useful for all pro-

fessional or business purposes. They contain not only a diary which is virtually a day-book or journal, but a cash-book, ledger, or note-book, rent and insurance register, and the paper and binding are of unusual excellence. No. 11 is specially adapted to the requirements of those in the building trades, and contains a series of tables of a practical character, including the calculation of wages, the checking of estimates, &c. In all, the index is a valuable feature.—"The Garden Oracle and Floricultural Year-Book for 1882," edited by Mr. Shirley Hibberd, is the twenty-fourth annual issue, and contains a treatise on the cultivation of the rose; a synopsis of the roses of fifty years, comprising descriptions and characters of 1,500 varieties; selections of the best roses now in cultivation for exhibition and garden decoration; a new selection of potatoes for all purposes and all soils; notes on new inventions, implements, &c.; and many matters of interest to gardeners, amateurs, botanists, and lovers of the country.

CHURCH-BUILDING NEWS.

Darlington.—The usual Christmas decorations at St. Cuthbert's Church are this year supplemented by a piece of decorative work of a permanent character, the ancient panelling at the back of the chancel-stalls, which was destroyed in 1748, having, through the liberality of the Duke of Cleveland, lay rector of the church, been restored from the drawings of Mr. J. P. Pritchett. As every particle of the old panelling was destroyed, the restoration has been imitated from that now existing in the chancel of Staindrop Church, where the stalls, and especially the ends, are so exactly like those at St. Cuthbert's that they must have been executed from the same drawings, if not by the same hands. This is the more interesting as at that time one of the Neville family, who owned Raby and Staindrop, was Bishop of Durham, and changed the constitution of Darlington Church from a vicarage to a deanery. The work has been executed by Mr. Osborne, contractor, of Darlington, out of old English oak which, after being in the roof of Middleham Church for 300 years, was taken down and replaced lately by a modern roof of foreign oak, during a "restoration" of the church.

Halesowen.—It is proposed to restore the church here as a memorial to the late Archdeacon Hone, at a cost of about 2,000*l*. Mr. John Oldrid Scott is preparing the plans.

Miscellanea.

A Corporation in a Dilemma.—The Corporation of Newbury are in a dilemma as regards their gas undertaking. The new gasworks are now in use, but after spending the whole of the capital borrowed (25,000*l*.), and charging the gas consumers 5s. 6d. per 1,000, the undertaking is practically insolvent. At the Council meeting on the 20th inst., the chairman of the committee told the Board that the liabilities of the undertaking exceeded 2,000*l*., that the assets were between 500*l*. and 600*l*., and that their borrowing powers were exhausted. Mr. Elliott, the contractor, was commissioned to do the work; his charges were taken exception to; the matter was referred to arbitration, and the Council now find themselves in the unenviable position of having to pay 1,267*l*. of the 1,569*l*. charged by Mr. Elliott, together with the costs of the arbitration, which are considerable in amount. The whole matter is now in confusion. The late chairman of the Gas Committee has declined to serve on the committee, and the manager has resigned.

Sewage of Leyton, Essex.—The Local Board of Leyton, Essex, have entered into a contract with the Rivers Purification Association, of Gresham House, for the purification and disposal of the sewage of their district. In these works the method of pressing the sludge into a portable condition, recently introduced successfully at the Coventry Sewage Works, will be employed.

The Will (dated July 23, 1880) of Mr. William Lee, J.P., the senior partner in the firm of Lee, Son, & Co., cement manufacturers, late of Holborough-court, Snodland, Kent, who died on September 29th last, was proved on the 3rd inst. by Mr. William Henry Roberts, the grandson, the acting executor, the personal estate amounting in value to upwards of 114,000*l*.

The Smoke Nuisance.—Last week Mr. Ernest Hart delivered at South Kensington a lecture, in connexion with the exhibition, on "The Bases and Method of Smoke Abatement," to a large audience. Dr. Siemens presided. Mr. Hart commenced his lecture by referring to the influence of smoke upon health, in proof of which he stated that during the week of fog ended on the 7th of February, 1880, the mortality in London was higher than it had been at any time during the last forty years. The lecturer gave some statistics as to the rate of mortality in the metropolis and various large towns in England. He referred, also, to the enormous quantity of coal consumed in London, and as illustrating its injurious effects on public buildings, stated that the external surface of the Houses of Parliament was so injured by fog and smoke as to cost 2,500*l*. a year to maintain it. Every house in the metropolis was also a sufferer from the smoke nuisance. The use of anthracite coal was urged, and directions were given for the best means of burning it. Mr. Hart also suggested the organisation of an enlightened public opinion, which would assist first of all in the more general introduction of improved patterns for household grates and kitcheners by individuals, and the acceptance by speculative builders of the principle of adopting such improved grates as a means of heating their houses more readily. He urged also that great London houseowners should recommend to their tenants the use of smoke-abating grates and kitcheners. The Duke of Westminster, who had taken a great interest in the exhibition, had promised to bring the matter before his tenants, and the committee had decided to approach all the landowners in London in order to obtain their co-operation.

Blythburgh Church.—The Rev. H. Sykes, in a letter to the *Morning Post*, says, in replying to a previous letter on the state of the church, that it is quite true that this "venerable and magnificent pile is assuredly mouldering into sad decay, desolation, and ruin." The spectacle is painful in the extreme to any person who has a spark of love for what is grand and beautiful in architecture, but the question arises, what can be done to prevent the further decay and ultimate ruin of this noble building? Some steps have been taken already. A meeting of parishioners, convened by circular, was held in the school on October 7th, when a committee was appointed to consider the matter. The late Mr. G. E. Street was engaged by the committee to inspect and report. Mr. Street and his son made a thorough inspection of the building in the early part of November, and promised to draw out estimates for the various portions of the work to be undertaken. The architect's reports and estimates have been delayed by the illness and lamented death of Mr. Street, but as soon as these have been received they will be printed for circulation and extensively advertised in the public papers.

The Brighton Sanitary Exhibition.—Mr. Councillor Hamilton, the general hon. sec. of this successful exhibition, has been presented by the exhibitors with a mantel clock and silver salver. The presentation was made, on behalf of the subscribers, by Mr. James Doulton. Mr. Hamilton, in the course of the proceedings, stated that 1,150*l*. had been taken at the doors, and that as many as 3,000 people had paid their sixpence at the door after six o'clock in the evening. The awards made do not appear to have given satisfaction to all the exhibitors,—an old complaint.

The Purification of Air in Tunnels.—For underground railways Dr. Neale has suggested to place beneath the railway carriages trays filled with slaked lime or caustic soda solutions, which, combining chemically with the injurious gases, such as carbonic oxide, carbonic acid, and sulphurous acid, form harmless salts. For hospitals, Dr. Neale recommends a chemical punkah, whose fan being made of vegetable fibre, is saturated with caustic soda solution fed from a small tank above.

Electric Lighting.—Arrangements have been made for lighting up the town of Godalming by electricity. It was brought into operation on the 15th inst.. The utilisation of water-power is not the only novelty. The arc lights are set up in the main street, and Swan incandescent lamps, introduced for the first time for public lighting, in the ordinary gas-lamps in the smaller turnings. Only bare copper wire, upon insulators, is used for the latter; and further, there is no direct return-wire used.

The Proposed Interference with Timber Stacks in the Metropolis.—At the meeting of the Metropolitan Board of Works on the 23rd inst., a large deputation of timber merchants attended to present a memorial against the 18th clause of the Metropolis Management Building and Thames Floods Prevention Acts Amendment Bill. The clause would give the Board power to control the stacking of timber in London, and even to forbid the stacking, except in the suburbs. Mr. Penty, for the deputation, said they were already heavily handicapped by foreign competition, and any interference with their trade would prove ruinous. To remove timber-yards out of London would mean loss of work to many artisans; and, owing to the rapidity with which work had frequently to be done, it would prove impracticable. In answer to questions, he said the deputation did not represent the firewood trade, and would rather not offer any opinion as to the danger of stacking firewood in the neighbourhood of private houses. The memorial was referred to the Works Committee.

The Damage to Maryport New Dock.—Last week a meeting of the Maryport Wet Dock Committee was held at the Harbour Office, to receive the report of the engineers upon the damage done to the new dock works by the late violent storms. The report of the engineers (Sir John Hawkshaw, Son, & Hayter) was read, recommending that the sea works should be strengthened and heightened, and the structure of the higher portion of the works erected in accordance with a new plan which accompanied the report. The report also specified the price per yard to be paid for the extra work, which amounted to an estimated additional expenditure of 25,000*l*., and that the work be carried out by Mr. Doherty, the contractor. On the motion of the chairman, seconded by Mr. Briggs, the report was adopted. The original contract amounted to about 90,000*l*.

Changes at the Parliament House, Edinburgh.—The *Scotsman* says that a scheme has now been completed for the accommodation of Lord Rosebery, Under Secresary of State for Home Affairs, in the Parliament House buildings, and plans to give effect to the scheme have been prepared by Mr. Robertson, of H.M. Office of Works, exhibiting the nature and extent of the arrangements contemplated. The matter is now under consideration of the Treasury. In the first place, it is proposed to utilise the corner premises, formerly occupied by the Union Bank, for the formation of an additional court-room for jury trials and proofs. The remaining space occupied by the acquisition of the bank premises will admit of considerable re-arrangement of certain of the public departments, and the providing of better accommodation for them. It is expected that the work of adaptation will be proceeded with early in the New Year.

Memorial of the Late Lord Beaconsfield.—The Rev. Henry Blagden, vicar of Hughenden, states that a large portion of the proposed memorial to Lord Beaconsfield at Hughenden has been completed. A west window, by Messrs. Clayton & Bell, has been erected, and the chancel wall has also been decorated by Messrs. Heaton, Butler, & Bayne, with paintings of evangelists, prophets, and angels, so as to harmonise with the east window, which is the gift of the late earl's executors. The remainder of the work proposed is in hand, to be completed by Easter, but the sum of 200*l*. is still needed to carry out the plan of the memorial.

Industrial Trades Exhibition in Nuremberg.—From May 15th to October 15th, 1882, a Bavarian Home Industrial Trades and Art Exhibition will be held in Nuremberg, under the immediate patronage of King Ludwig II. of Bavaria. The Bavarian State Ministers will support the exhibition to the fullest extent, and the Bavarian Industrial Museum, which is carrying out the arrangements for the exhibition, is doing everything to make it a success, a guarantee fund of 600,000 marks (30,000*l*.) having already been raised for it, mainly in Nuremberg.

Modelling at the Royal Academy.—We are glad to hear that Mr. Hugh Stannus has been appointed teacher of modelling in the Architectural School at the Royal Academy. We anticipate much advantage from the appointment.

Sir Antonio Brady.—It is proposed to build a chancel and to reseat the Church of St. John, Stratford, in memory of the late Sir Antonio Brady, who was anxious that the work should be undertaken.

The Dome of St. Sophia.—The dome of St. Sophia, at Constantinople, is again reported to be in a dangerous condition, and threatens soon to fall in. The cause is attributed to the restoration which was carried out forty years ago by an Italian architect, Signor Fossati, who removed a number of the wooden supports that were previously found under the cupola. The interest of all civilised peoples in this edifice is such that it is to be hoped the best available advice will be obtained.

TENDERS

For sewering, &c., Chapel-grove, Lorne-grove, Gloucester-road, and Roe-street, Urmston, for the Barton-upon-Irwell Rural Sanitary Authority. Quantities by the engineer, Mr. John Price, Assoc. M. Inst. C.E.:—

Henry Prescott & Co., Pendleton	£1,963	14	0
Solomon Holt, Miles Platting	1,763	2	8
Matthew Naylor, Hulme	1,573	10	0
John Mackay, Hereford	1,466	0	0
Edmund Bird, Chorlton	1,304	8	6
Wm. Thos. Moss, Stafford	1,288	14	3
Wm. Snape & Son, Eccles	1,193	10	6
W. H. Worthington, Manchester	1,099	4	8
J. Randall, Weaste	1,046	0	0
S. Cowburn, Hindley (accepted)	1,000	10	6

For pulling down and rebuilding the Bull's Head public house, Tottenham-court-road, for Mr. Hyams. Mr. E. Brown, architect:—

C. Marr	£7,227	0	0
Perry & Co.	7,030	0	0
S. Salt	6,850	0	0
C. Dickenson	6,450	0	0
J. Morter	6,450	0	0
F. & F. J. Wood	6,194	0	0
W. Shurmur	6,093	0	0
Jackson & Todd, Hackney - road (accepted)	5,920	0	0

For the erection of a detached residence at Barnwood, near Gloucester, for Mr. Chas. Jeynes. Mr. Capel N. Tripp, architect:—

James Clutterbuck, Gloucester	£935	0	0
Alfred King, Gloucester	977	0	0
Edward Godwin, Gloucester (accepted)	878	0	0
F. C. Allen, Gloucester	870	0	0
John Webb, Birmingham	819	0	0

For erecting a farm-house at Ufford, for the Right Hon. Lord Kesteven. Messrs. Richardson, architects:—

Thompson, Derby	£774	0	0
Sharp Bros., Little Bytham	732	0	0
Roberts & Johnson, Ashton	704	0	0
Dean, Uppingham	686	0	0
Roberts Bros., Stamford	680	0	0
Wallis, Spalding	649	0	0
Story & Son, Bourn	648	16	0
John Woolston, Stamford	619	0	0
Allister, Wisbech	616	0	0
Perkins, Easton	615	0	0
Scholes, Stamford	599	0	0
Hinson, Stamford	569	11	9
Thos. Woolston, Stamford (accepted)	540	0	0
Dobson, Stamford	482	12	0

For sewers, Crouch-hill, for Mr. M. L. Cassell. Messrs. Hills & Fletcher, surveyors:—

Hubbard	£317	0	0
Taylor	276	0	0
Joseph Jackson, Upton	266	10	0
Rowley	264	10	0

For building three new cottages in Northey-street, Limehouse, for Dr. Vickers. Mr. Chas. Dunch, architect:—

Higgs	£826	14	0
Shurmur	765	0	0
Taylor & Co.	629	0	0
Palmer	537	10	0
Walker	510	0	0

For alterations at Railway Tavern, Victoria Park Station, for Messrs. Truman, Hanbury, & Co. Mr. B. J. Capell, architect:—

Hearle & Son	£472	0	0
Keetch	432	0	0
Shurmur	432	0	0
Marr	409	0	0

For the erection of school buildings, &c., in the Almaroad, St. Alban's, for the St. Alban's School Board. Messrs. J. & S. F. Clarkson, architects. Quantities by Messrs. Hodgson & Mundy:—

Monk, Two Waters	£3,447	2	6
White, Dunstable	2,980	0	0
Carlin, St. Alban's	2,907	18	6
Capper, St. Alban's	2,886	16	11
Edey, Son, & Co., St. Neots	2,788	0	0
Potter, Leicester	2,769	0	6
Savage, St. Alban's	2,694	6	0
Jones & Co., Gloucester	2,637	0	0
Matthews, Dover	2,625	5	6
Rayment & Son, Hertford	2,598	4	0
George, Stoney Stratford	2,586	3	7
C. Miskin, St. Alban's (accepted)	2,483	0	0
Ireson, Northampton	2,465	0	0

For Masonic Hall, Devonport. Mr. J. F. Burns, architect:—

J. Dart, Devonport	£675	0	0
J. Healy, Devonport	622	10	0
H. Gill, Devonport	550	0	0
R. D. Rowe, Devonport	535	0	0
T. Jenkin, Devonport	530	0	0
A. R. Lethbridge, Plymouth	475	0	0
G. H. Smith, Devonport	469	0	0
J. Harley, Plymouth (accepted)	447	0	0

For erecting offices, stables, cooperage, cask-shed, &c., at the new Swan Brewery, Walham-green, for Messrs. Stansfeld & Co. Mr. W. Bradford, architect. Quantities by Messrs. J. & A. E. Bull:—

G. H. & A. Bywaters (accepted)	£10,427	10	0

For alterations to premises, 224, Goswell-road, for the Metropolitan Provident Medical Association. Mr. Wm. Bradford, architect:—

John Emery	£374	0	0
J. Newton	257	0	0
W. H. Snow	225	0	0
Joseph Edgar (accepted)	207	0	0

For shop-front and internal fittings, 34, Bank-buildings, Hackney. Messrs. W. Waymouth & Sons, architects:—Shurmur (accepted).

For additions to works, St. Alban's, for the "Turner" Gas Engine Company (Limited):—

C. Miskin (accepted)	£354	0	0

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